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Access DB# 260549

EIC 1700 SEARCH REQUEST

Today's Date 5-14-08

Name Sin J. Lee

AU/Org. 1795 Examiner # 76060

Bld.&Rm.# 9C15 Phone 2-1333
(Rem)

Priority App. Filing Date P12. see Btk.

Case/App. # 10/527,068

Format for Search Results
EMAIL PAPER ✓

If this is a Board of Appeals case, check here ☐

Synonyms _____

Describe this invention in your own words. _____

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Cntr

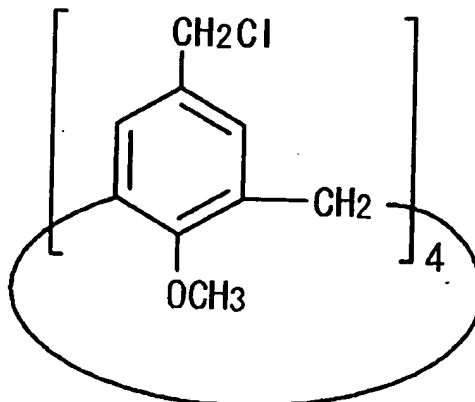
MAY 15 REC'D

Pat. & T.M. Office

Terms to avoid _____

Additional Comments

P12. search for
a resist composition
containing the
following
compound



(I)

Please submit completed form to your EIC. SPE Signature here indicates Rush

STAFF USE ONLY

Type of Search

Vendors and cost where applicable

Abstract

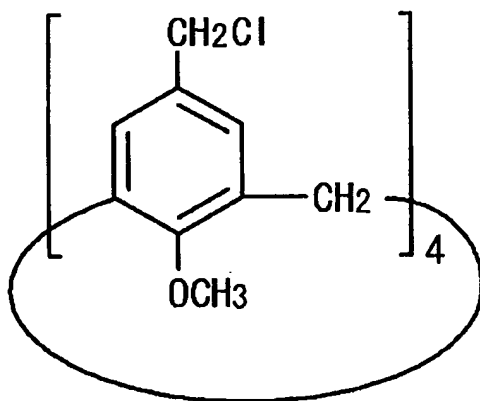
The resist according to the present invention includes any one of tetrachloromethyl tetramethoxycalix [4] arene and trichloromethyl
5 tetramethoxycalix [4] arene. The resist including such kind of components is soluble in the solvent having less effect to worsen a working environment, namely, ethyl lactate (EL), propylene glycol monomethyl ether (PGME), propylene glycol monomethyl ether acetate
10 (PGMEA), ethyl propionate, n-butyl acetate and 2-heptanone. It can be developed by tetra-methyl ammonium hydroxide in addition to the above mentioned solvent. By exposing this resist by electronic ray, high resolution of 8 nm is attained, and by using this
15 resist as a mask, various materials can be formed into a hyperfine shape. According to such kind of resist, a photosensitive resist material which has high resolution and solvable to solvents having less effect to worsen the working environment and can be developed
20 by the solvents, a exposure method using it, and a hyperfine processing method using it are provided.

AMENDMENTS TO THE CLAIMS

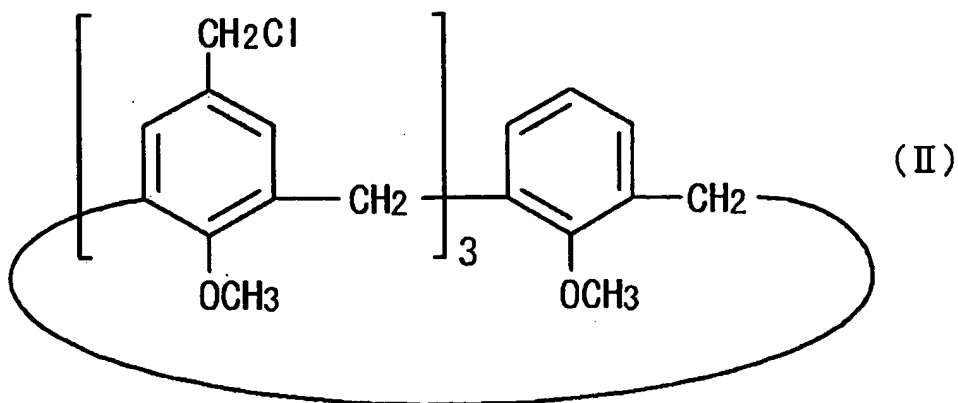
1. (Canceled)

2. (Original) A resist comprising at least one of 5,11,17,23 - tetrachloromethyl - 25,26,27,28 - tetramethoxycalix [4] arene (CMC4AOMe) represented by the structural formula (I) of the following chemical formula 3 and 5,11,17 - trichloromethyl - 25,26,27,28 - tetramethoxycalix [4] arene (CMC3AOMe) represented by the structural formula (II) of the following chemical formula 4.

[Chemical Formula 3]

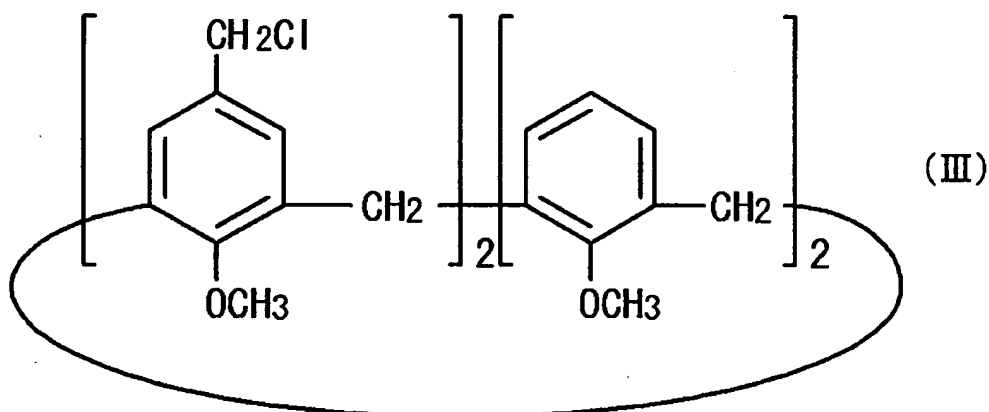


[Chemical Formula 4]

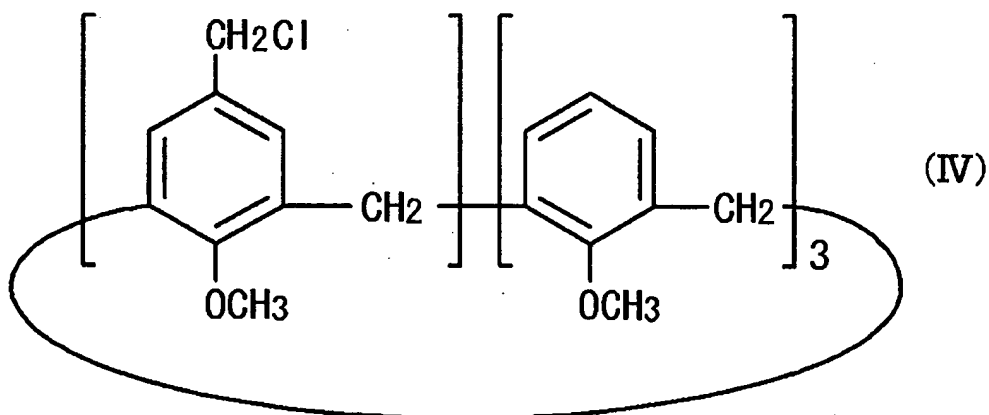


3. (Original) The resist according to claim 2, further comprising at least one of 5,11 – dichloromethyl – 25,26,27,28 – tetramethoxycalix [4] arene (CMC2AOMe) represented by the structural formula (III) of the following chemical formula 5 and 5 – monochloromethyl – 25,26,27,28 – tetramethoxycalix [4] arene (CMC1AOMe) represented by the structural formula (IV) of the following chemical formula 6 is provided.

[Chemical Formula 5]



[Chemical Formula 6]



4. (Previously Presented) The resist according to claim 2, further comprising at least one of oligomer and organic polymer compound.

5. (Previously Presented) The resist according to claim 2, which is exposed by the irradiation of at least one of electronic beam, X-ray, ion beam and atomic beam.

6. (Previously Presented) The resist according to claim 2, further comprising, at least one solvent selected from the group consisting of ethyl lactate (EL), propylene glycol monomethyl ether (PGME), propylene glycol monomethyl ether acetate (PGMEA), ethyl propionate, n-butyl acetate and 2-heptanone.

7. (Original) A method for forming a resist pattern comprising the following steps of coating the resist according to claim 6 on a substrate, exposing said resist to a radioactive ray; and a step developing said resist.

8. (Original) The method according to claim 7,
Wherein said radioactive ray is any of electronic beam, X-ray, ion beam and atomic beam.

9. (Previously Presented) The method according to claim 7,
wherein said developing step is carried out by using a developer comprising at least one selected from the group consisting of ethyl lactate (EL), propylene glycol monomethyl ether

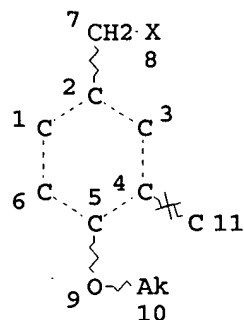
(PGME), propylene glycol monomethyl ether acetate (PGMEA), ethyl propionate, n-butyl acetate, 2-heptanone and tetramethyl ammonium hydroxide.

10. (Previously Presented) A method for hyperfine processing comprising the steps of forming a resist pattern using the resist pattern forming method according to claim 7; and performing a processing on said substrate with said resist pattern as a mask.

11. (Previously Presented) The resist according to claim 3, further comprising at least one of oligomer and organic polymer compound.

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L12 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 11
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

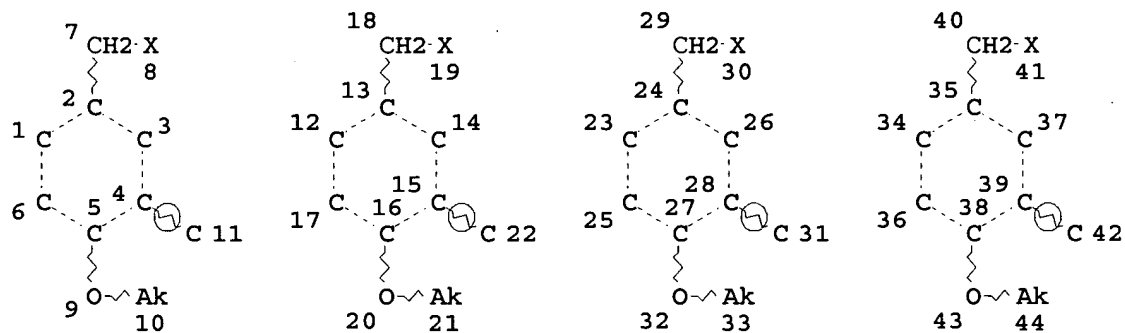
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE

L14 528 SEA FILE=REGISTRY SSS FUL L12

L16 STR



NODE ATTRIBUTES:

NSPEC IS R AT 11
 NSPEC IS R AT 22
 NSPEC IS R AT 31
 NSPEC IS R AT 42
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 44

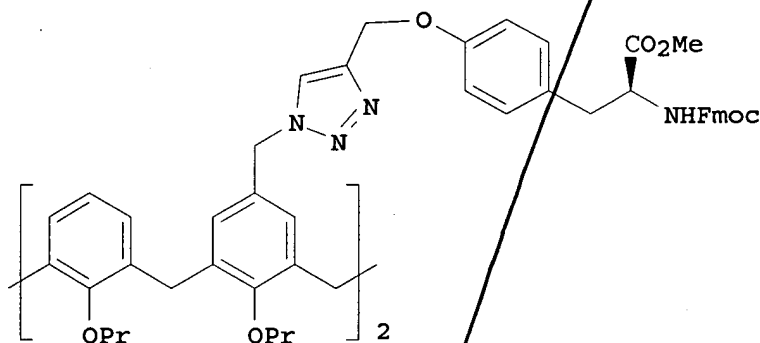
STEREO ATTRIBUTES: NONE

L18 27 SEA FILE=REGISTRY SUB=L14 SSS FUL L16

L24 64 SEA FILE=HCAPLUS ABB=ON PLU=ON L18

=> => d 124 1-64 ibib ed abs hitstr hitind

L24 ANSWER 1 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2007:899556 HCAPLUS
 DOCUMENT NUMBER: 147:385707
 TITLE: Upper Rim Appended Hybrid Calixarenes via Click Chemistry
 AUTHOR(S): Bew, Sean P.; Brimage, Rebecca A.; L'Hermite, Nathalie; Sharma, Sunil V.
 CORPORATE SOURCE: School of Chemical Sciences Pharmacy, University of East Anglia, Norwich, NR4 7TJ, UK
 SOURCE: Organic Letters (2007), 9(19), 3713-3716
 CODEN: ORLEF7; ISSN: 1523-7060
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 147:385707
 ED Entered STN: 15 Aug 2007
 GI

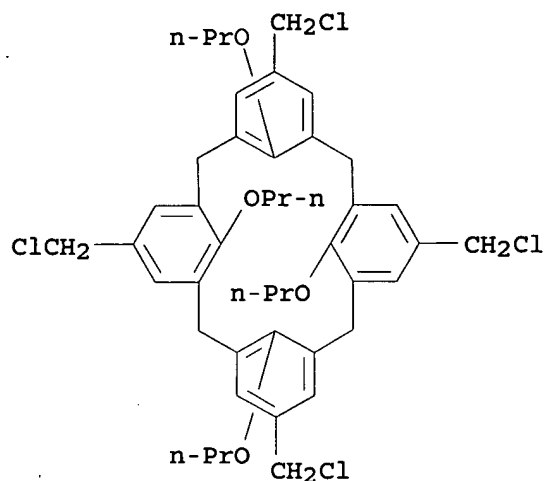


AB We report the application of "click" chemical for the synthesis of hybrid calixarenes appended on the upper rim with carbohydrate and N,C-protected α -amino acids, e.g., I. The chemoselective N- or C-deprotection of the α -amino acids and their subsequent transformation into dipeptides is described. The first example of a chemo-enzymic synthesis on upper rim derived calix[4]arenes using trans-sialidase affords sialylated lactose calix[4]arenes. Our innovative chemo-enzymic process paves the way for further applications.

IT 325814-49-1
 (preparation of hybrid calixarenes appended on the upper rim with carbohydrate or protected α -amino acids via copper catalyzed microwave assisted Click chemical)

RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX
 NAME)



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 28, 33, 34

IT 10065-72-2, L-Alanine methyl ester 13139-15-6 34272-02-1
125376-33-2 176098-86-5 325814-49-1 910479-36-6
949894-57-9 949894-83-1 949894-88-6 949894-90-0 949894-92-2
949894-99-9

(preparation of hybrid calixarenes appended on the upper rim with carbohydrate or protected α -amino acids via copper catalyzed microwave assisted Click chemical)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 2 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:510567 HCAPLUS

DOCUMENT NUMBER: 145:28124

TITLE: Preparation of novel calixarene- and polycyclic aromatic phosphonates and phosphates for treatment, diagnostic and prevention of dry age-related retinal macular degeneration

INVENTOR(S): Schrader, Thomas; Klaerner, Frank-Gerrit; Fokkens, Michael; Zadnand, Reza; Polkowska, Jolanta; Bastkowski, Frank; Jasper, Christian

PATENT ASSIGNEE(S): Philipps-Universitaet Marburg, Germany; Universitaet Duisburg-Essen

SOURCE: PCT Int. Appl., 58 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

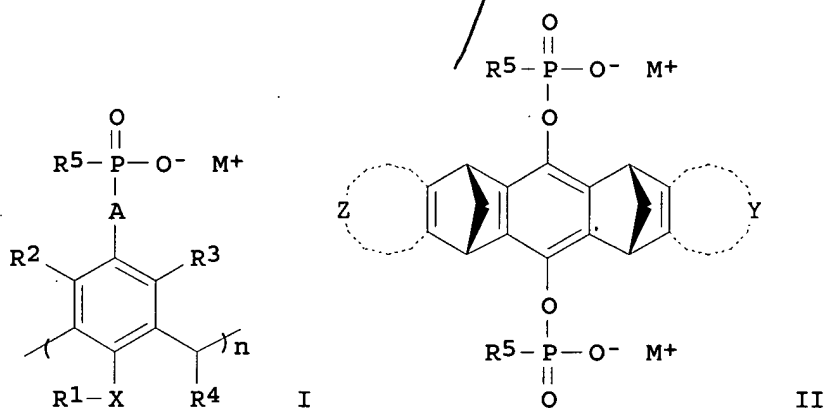
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006056182	A1	20060601	WO 2005-DE2106	20051123
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,				

RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ,
 UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
 IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
 TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

DE 102004056822 A1 20060608 DE 2004-102004056822 20041124
 PRIORITY APPLN. INFO.: DE 2004-102004056822A 20041124

OTHER SOURCE(S): CASREACT 145:28124; MARPAT 145:28124
 ED Entered STN: 01 Jun 2006
 GI



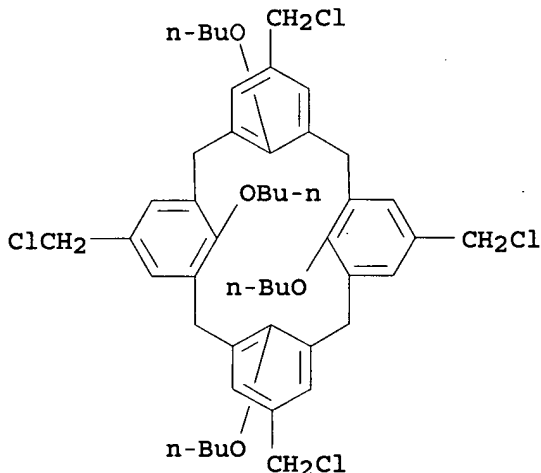
AB Novel diphosphonates and diphosphates with calixarene or dimethano-acene backbones (I, II, resp.; A = bond, CH₂, X = O, S; n = 4-8; R₁ = H, C₄-20 alkyl, N-, O-, S-, P-heteroalkyl, hydroxyoligoalkoxyalkoxy, alkylcarboxy, isoprenyl, terpenyl, sesquiterpenyl, diterpenyl; R₂, R₃ = H, OH; R₄ = H, linear C₁-20 alkyl, preferably R₄ = C₁-8 linear alkyl; R₅ = O-, alkyl, aryl, alkoxy aryloxy, cycloalkoxy, heteroalkoxy; Z, Y = benzo-, 2,3-naphtho-, 2,3-anthraceno-), useful as specific complexants for lipophilic pyridinium bis-retinoid cation (A 2E) in treatment, diagnostic and prevention of eye dry age-related macular degeneration, were prepared by nickel-catalyzed phosphorylation of tetrabromo-calixarene ethers and esterification of dimethanoacene diols by phosphonic dichloridites with subsequent hydrolysis; the prepared diphosphonates and diphosphates were assayed in complexation with A 2E. Clips II feature a fused-ring systems in which aromatic ring systems are bonded to one another via bicyclo[2.2.1]hept-2-ene groups in such a manner that the entire mol. describes a U and forms a cavity. In an example, reaction of 0.83 mmol of tri-Et phosphite in 2 mL of benzonitrile with 0.5 mmol of 5,11,17,23-tetrabromo-25,26,27,28-tetrabutoxycalix[4]arene in the presence of 0.25 mmol of NiCl₂ at 180° for 1 h gave 0.32 mmol (62%) of diethoxyphosphinyl derivative of the calix[4]arene which was converted to I (n = 4; XR₁ = OEt, R₂ = R₃ = H; A = bond, R₅ = OEt, M = Li) by heating with 4 mol equiv of LiBr in 2-hexanol at 130° for 1.5 h. In another example, complexation of A 2E with compound II (R₅ = Me, Z = Y = 2,3-naphtho) was studied by NMR titration; a value of binding constant K was found to be 2125 M⁻¹.

IT 435332-10-8

(process for preparation of calixarene and polycyclic aromatic phosphonates as complexants for pyridinium lipophilic retinoid in treatment of eye age-related macular degeneration)

RN 435332-10-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 1, 13, 22

IT 676-97-1 288625-14-9 435332-10-8 464172-15-4

(process for preparation of calixarene and polycyclic aromatic phosphonates as complexants for pyridinium lipophilic retinoid in treatment of eye age-related macular degeneration)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 3 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:384572 HCAPLUS

DOCUMENT NUMBER: 145:83266

TITLE: Influence of the number and geometry of binding sites on host-guest affinity: imidazolium-substituted receptor molecules for small inorganic anions

AUTHOR(S): Fahlbusch, Tilmann; Frank, Markus; Schatz, Juergen; Schmaderer, Harald

CORPORATE SOURCE: Division of Organic Chemistry I, University of Ulm, Ulm, 89081, Germany

SOURCE: European Journal of Organic Chemistry (2006), (8), 1899-1903

CODEN: EJOCFK; ISSN: 1434-193X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 145:83266

ED Entered STN: 27 Apr 2006

AB The influence of the number and relative geometry of the binding sites on

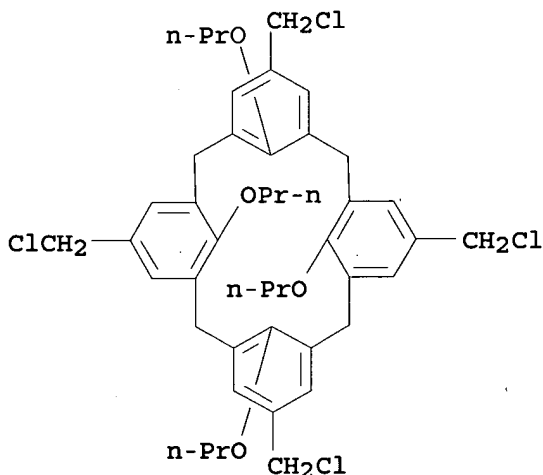
the binding of spherical and tetragonal inorg. anions (Cl^- , Br^- , H_2PO_4^- , and HSO_4^-) has been studied by using imidazolium salts based on benzene and calix[4]arenes. Binding consts. in DMSO were in the range of 200-2000 L mol^{-1} . Three or four binding sites lead to the nonselective binding of all anions indicating the decisive influence of the number of possible binding positions; binding consts. of .apprx. 2000 for H_2PO_4^- , 1000 for HSO_4^- , 900 for Cl^- , and 800 L mol^{-1} for Br^- were obtained. Benzene and calixarene-based (5b) bis(imidazolium) salts exhibited a high selectivity towards $\text{H}_2\text{PO}_4^-/\text{HSO}_4^-$ and Cl^-/Br^- indicating that for the complexation of H_2PO_4^- and Cl^- two binding sites are necessary, and for Br^- and HSO_4^- at least three. In this case, selectivity could be obtained by simple variation of the number of identical binding positions.

IT 325814-49-1

(preparation and influence of the number and geometry of binding sites on host-guest affinity in imidazolium-substituted receptor mols. for small inorg. anions)

RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX
NAME)



CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))

IT 616-47-7, 1-Methylimidazole 18226-42-1, 1,3,5-
Tris(bromomethyl)benzene 21988-87-4, 1,3,5-Tris(bromomethyl)-2,4,6-
trimethylbenzene 176098-86-5 190779-61-4 325814-49-1

(preparation and influence of the number and geometry of binding sites on host-guest affinity in imidazolium-substituted receptor mols. for small inorg. anions)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 4 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

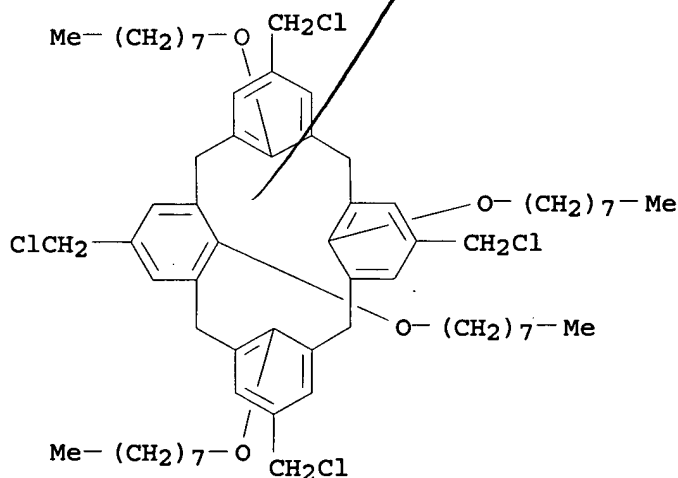
ACCESSION NUMBER: 2006:104308 HCAPLUS

DOCUMENT NUMBER: 145:292510

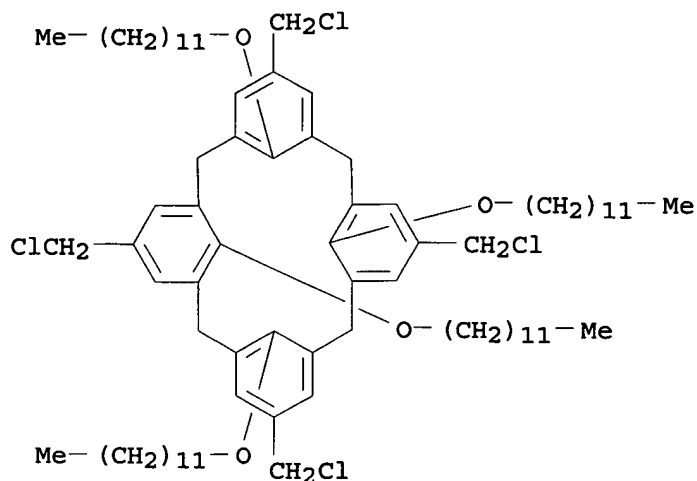
TITLE: Self-assembly of amphiphilic calix[4]arenes in
aqueous solution

AUTHOR(S): Strobel, Michael; Kita-Tokarczyk, Katarzyna;

CORPORATE SOURCE: Taubert, Andreas; Vebert, Corinne; Heiney, Paul A.; Chami, Mohamed; Meier, Wolfgang
 Department of Chemistry, Biozentrum, University of Basel, Basel, CH-4056, Switz.
 SOURCE: Advanced Functional Materials (2006), 16(2), 252-259
 CODEN: AFMDC6; ISSN: 1616-301X
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 145:292510
 ED Entered STN: 03 Feb 2006
 AB The self-assembly of amphiphilic calix[4]arenes with either a carboxylic acid or a tri-Me ammonium head group and different alkyl chains in aqueous solution was investigated. The carboxylated calixarene forms vesicles in dilute solution and stable monolayers on water. In contrast, the ammonium head group provides high water solubility with no observed aggregation. At high concns., all calixarene amphiphiles form lyotropic liquid crystals.
 IT 908010-96-8P 908010-97-9P
 (intermediate; self-assembly of amphiphilic calix[4]arenes in aqueous solution)
 RN 908010-96-8 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosal-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(octyloxy)- (CA INDEX NAME)



RN 908010-97-9 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosal-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(dodecyloxy)- (CA INDEX NAME)



CC 22-13 (Physical Organic Chemistry)
 Section cross-reference(s): 66, 68, 75
 IT 74568-07-3P 141344-73-2P 149484-39-9P 402870-55-7P
 908010-96-8P 908010-97-9P
 (intermediate; self-assembly of amphiphilic calix[4]arenes in aqueous solution)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 5 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2006:44975 HCAPLUS
 DOCUMENT NUMBER: 144:292271
 TITLE: Kinetic Acidity of Supramolecular Imidazolium Salts-Effects of Substituent, Preorientation, and Counterions on H/D Exchange Rates
 AUTHOR(S): Fahlbusch, Tilmann; Frank, Markus; Schatz, Juergen; Schuehle, Daniel T.
 CORPORATE SOURCE: Division of Organic Chemistry I, University of Ulm, Ulm, D-89069, Germany
 SOURCE: Journal of Organic Chemistry (2006), 71(4), 1688-1691
 CODEN: JOCEAH; ISSN: 0022-3263
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 144:292271

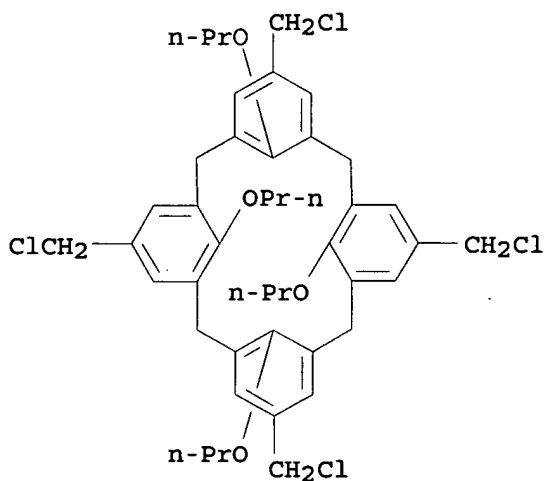
ED Entered STN: 18 Jan 2006

AB The deprotonation of imidazolium salts to N-heterocyclic carbenes is often a decisive step in modern catalytic reactions. Therefore, we studied the H/D exchange of the C2 H of 15 imidazolium-substituted calix[4]arenes and 11 nonmacrocyclic model compds. in methanol/water (97:3). The influence of the counterion, substitution directly on the imidazolium unit or on the preorienting calixarene backbone could be studied. The observed exchange rates might give a rational for the suitability of the imidazolium salts as precursors in the Suzuki coupling.

IT 325814-49-1

(quaternization reaction; substituent, preorientation, and counterions effects on H/D exchange rates and kinetic acidity of

supramol. imidazolium salts)
 RN 325814-49-1 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX
 NAME)



CC 22-12 (Physical Organic Chemistry)
 IT 616-47-7, 1-Methylimidazole 25364-44-7, 1-Mesitylimidazole
 45676-04-8, 1-tert-Butylimidazole 176098-86-5 325814-49-1
 878482-79-2
 (quaternization reaction; substituent, preorientation, and
 counterions effects on H/D exchange rates and kinetic acidity of
 supramol. imidazolium salts)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L24 ANSWER 6 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:1350225 HCAPLUS
 DOCUMENT NUMBER: 144:261552
 TITLE: Gluing Langmuir-Blodgett Monolayers onto
 Hydrocarbon Surfaces
 AUTHOR(S): Li, Junwei; Janout, Vaglav; Regen, Steven L.
 CORPORATE SOURCE: Department of Chemistry, Lehigh University,
 Bethlehem, PA, 18015, USA
 SOURCE: Journal of the American Chemical Society (2006),
 128(3), 682-683
 CODEN: JACSAT; ISSN: 0002-7863
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 144:261552
 ED Entered STN: 30 Dec 2005
 AB This paper describes a new approach for modifying hydrophobic surfaces
 that is based on the use of ionically cross-linked (i.e., glued)
 Langmuir-Blodgett monolayers. Specifically, this work shows how
 monolayers of 5,11,17,23,29,35-hexa(trimethylammonium
 Me)-37,38,39,40,41,42-hexakis-n-hexadecyloxy-calix[6]arene, which
 were ionically cross-linked with poly(4-styrene-sulfonate) (PSS, MW

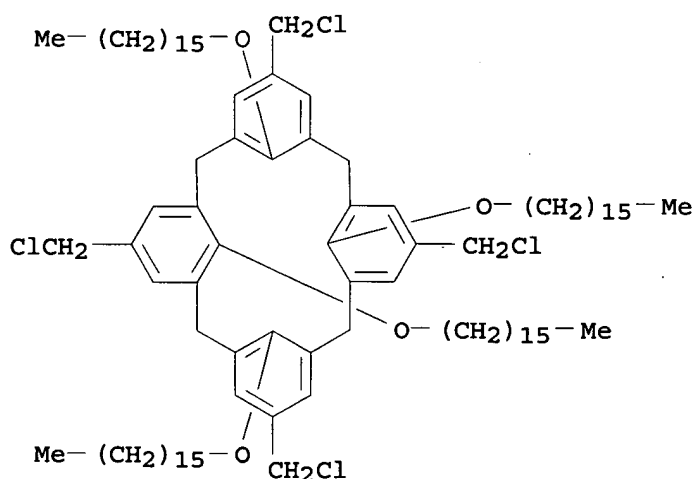
30,000-50,000), can be deposited onto silylated silicon wafers with their polar headgroups extending outward into air. This work also demonstrates the feasibility of using glued monolayers of 1a as anchors for attaching alternating layers of poly(diallyldimethylammonium) [PDADMA] and PSS ions onto these same hydrocarbon surfaces.

IT 877063-17-7

(cone conformer; gluing Langmuir-Blodgett monolayers onto hydrocarbon hydrophobic surfaces)

RN 877063-17-7 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(hexadecyloxy)-
(CA INDEX NAME)



CC 66-5 (Surface Chemistry and Colloids)
Section cross-reference(s): 22

IT 877063-16-6 877063-17-7

(cone conformer; gluing Langmuir-Blodgett monolayers onto hydrocarbon hydrophobic surfaces)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 7 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:31712 HCAPLUS

DOCUMENT NUMBER: 142:279714

TITLE: Multiple ionic interactions for noncovalent synthesis of molecular capsules in polar solvents
AUTHOR(S): Corbellini, Francesca; van Leeuwen, Fijs W. B.; Beijleveld, Hans; Kooijman, Huub; Spek, Anthony L.; Verboom, Willem; Crego-Calama, Mercedes; Reinhoudt, David N.

CORPORATE SOURCE: Laboratory of Supramolecular Chemistry and Technology, MESA+ Institute for Nanotechnology, University of Twente, Enschede, 7500 AE, Neth.
SOURCE: New Journal of Chemistry (2005), 29(1), 243-248
CODEN: NJCHE5; ISSN: 1144-0546

PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal

LANGUAGE: English
 OTHER SOURCE(S): CASREACT 142:279714
 ED Entered STN: 14 Jan 2005
 GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The formation and characterization of mol. capsules resulting from the self-assembly between oppositely charged (thia)calix[4]arenes in polar solvents like MeOH and MeOH-H₂O are reported. The multiple ionic interactions allow the self-assembly of the complementary (thia)calix[4]arenes I and II,III,IV, and V into 1:1 complexes as revealed by ¹H NMR and mass spectrometry (ESI-MS). Isothermal titration calorimetry (ITC) was used to determine the association consts., which, depending on the ionic groups involved in the complexes, vary between 103 and 106 M⁻¹. An X-ray structure of the assembly I•V was also obtained. Unlike in solution, in the solid state I•V forms a 1:1 three-dimensional network in which V adopts a 1,2-alternate conformation.

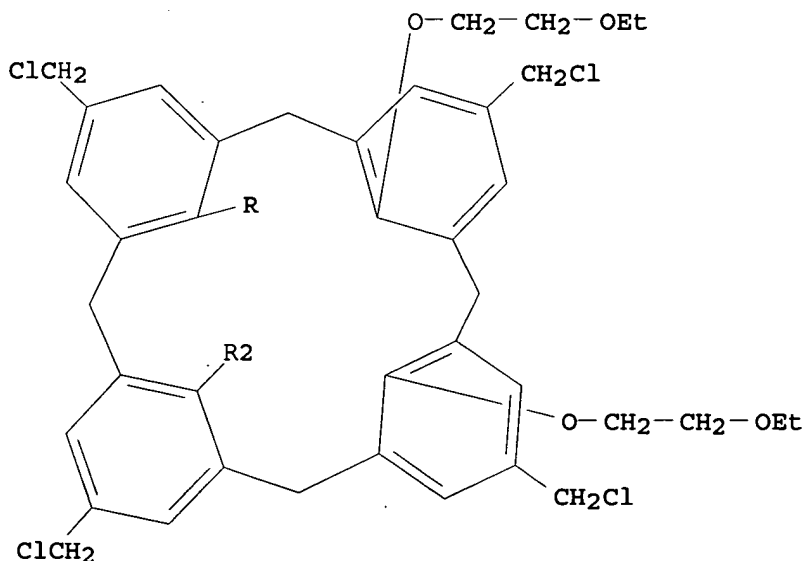
IT 155057-44-6P

(intermediate; multiple ionic interactions for noncovalent synthesis of mol. capsules in polar solvents)

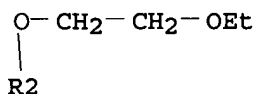
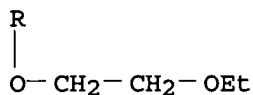
RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosal-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy) - (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 22-3 (Physical Organic Chemistry)

Section cross-reference(s): 75

IT 155057-44-6P

(intermediate; multiple ionic interactions for noncovalent synthesis of mol. capsules in polar solvents)

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 8 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:2460 HCAPLUS

DOCUMENT NUMBER: 142:235958

TITLE: Nanomolar protein sensing with embedded receptor molecules

AUTHOR(S): Zadmard, Reza; Schrader, Thomas

CORPORATE SOURCE: Fachbereich Chemie, Philipps-Universitaet Marburg, Marburg, 35032, Germany

SOURCE: Journal of the American Chemical Society (2005), 127(3), 904-915

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:235958

ED Entered STN: 03 Jan 2005

AB A new concept of protein sensing at the air-water interface is introduced, based on amphiphilic receptor mols. embedded in a lipid monolayer. The process begins with incorporation of a small amount (0.13 equiv) of one or two different calix[4]arenes, adorned with charged functional groups at their upper rims, into a stearic acid monolayer. These doped monolayers are subsequently shown to attract peptides and proteins from the aqueous subphase. Depending on the host structure, the monolayers can be made selective for basic or acidic proteins. A working model is proposed, which explains the large observed p/A shifts with reincorporation of excess receptor mols. into the lipid monolayer after complex formation with the oppositely charged protein. This requires a self-assembly of multiple calixarene units over the protein surface, which bind the protein in a cooperative fashion. Oppositely charged calixarene derivs. do not form mol. capsules inside the monolayer, but rather remain sep. inside the lipid layer, adopting a perpendicular orientation. They combine their hydrogen bond donor and acceptor capacities, and thus markedly enhance the sensitivity of the sensor system toward proteins, pushing the detection limits to 10 pM concns. The response pattern obtained from various receptor units inside the monolayer toward the same protein creates a fingerprint for this protein, which can hence be selectively

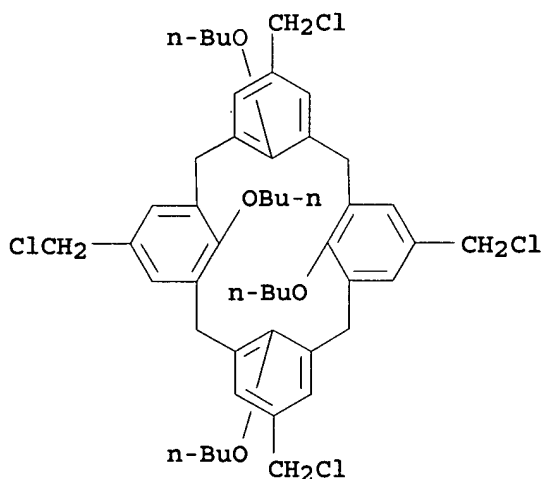
detected at nanomolar concns. (pattern recognition).

IT 435332-10-8P

(nanomolar protein sensing with embedded receptor mols.)

RN 435332-10-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX
NAME)



CC 9-16 (Biochemical Methods)

IT 435332-10-8P 435332-19-7P 435332-25-5P 436148-33-3P

436148-35-5P 464172-15-4P 794451-70-0P

(nanomolar protein sensing with embedded receptor mols.)

REFERENCE COUNT: 69 THERE ARE 69 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 9 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:769864 HCAPLUS

DOCUMENT NUMBER: 141:395148

TITLE: Stimuli-Responsive Supramolecular Nanocapsules
from Amphiphilic Calixarene Assembly

AUTHOR(S): Lee, Myongsoo; Lee, Sun-Ja; Jiang, Li-Hong

CORPORATE SOURCE: Center for Supramolecular Nano-Assembly and
Department of Chemistry, Yonsei University, Seoul,
120-749, S. Korea

SOURCE: Journal of the American Chemical Society (2004),
126(40), 12724-12725

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:395148

ED Entered STN: 22 Sep 2004

AB We synthesized tetrameric amphiphilic mols. based on a calixarene
building block that self-assembles into a tunable and stable
aggregation structure in aqueous solution. The amphiphilic calixarene mols.
with a small hydrophilic part were observed to assemble into a vesicular
structure that decreases significantly in diameter with only small
increases in the hydrophilic chain length. Further increasing the

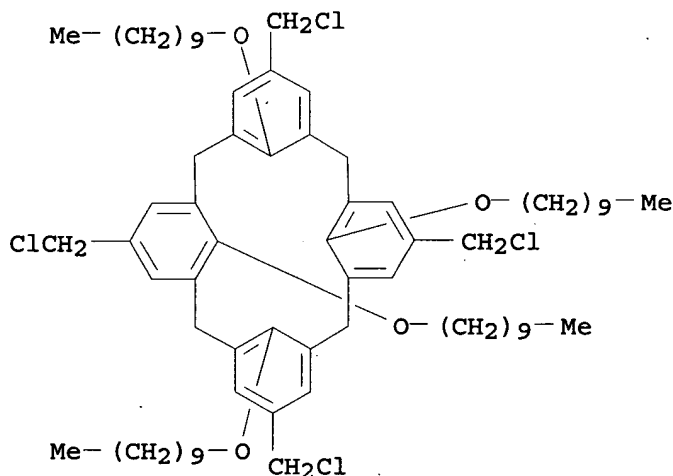
chain length induced the collapse of the vesicles into spherical micelles. Remarkably, the vesicles were also observed to transform into small globular micelles at lower pH, which can be used to trigger the release of the encapsulated hydrophilic guest mols.

IT 790300-14-0P

(stimuli-responsive supramol. nanocapsules from amphiphilic calixarene assembly)

RN 790300-14-0 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosal-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(decyloxy) - (CA INDEX NAME)



CC 22-13 (Physical Organic Chemistry)

Section cross-reference(s): 73

IT 561029-60-5P 790300-14-0P

(stimuli-responsive supramol. nanocapsules from amphiphilic calixarene assembly)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 10 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:466478 HCAPLUS

DOCUMENT NUMBER: 142:121212

TITLE: New Wide Rim Phosphomethylated Calix[4]arenes in Extraction of Americium and Europium

AUTHOR(S): Klimchuk, O.; Atamas, L.; Miroshnichenko, S.; Kalchenko, V.; Smirnov, I.; Babain, V.; Varnek, A.; Wipff, G.

CORPORATE SOURCE: Institute of Organic Chemistry, National Academy of Sciences of Ukraine, Kiev 94, 02094, Ukraine

SOURCE: Journal of Inclusion Phenomena and Macrocyclic Chemistry (2004), 49(1-2), 47-56
CODEN: JIPCF5; ISSN: 1388-3127

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 10 Jun 2004

AB A new series of the cone-shaped tetraalkoxycalix[4]arenes substituted

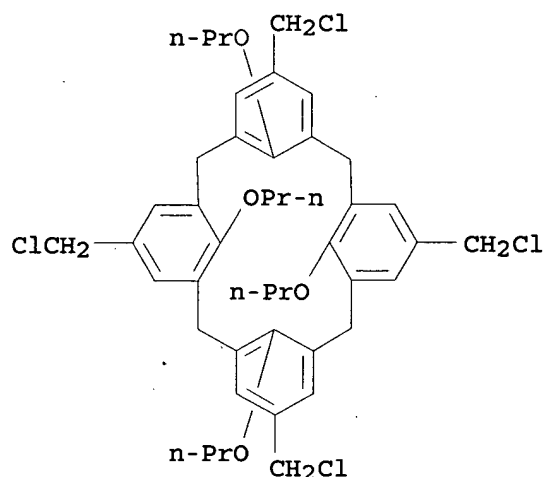
at the wide rim with four phosphomethyl groups have been synthesized by the Arbuzov, Michaelis-Becker and Aterthon-Todd reactions of the chloromethyl or phenylhydrophosphinylmethylcalix[4]arenes. Their binding properties towards Eu^{3+} and Am^{3+} cations were investigated by the liquid-liquid extraction method. Due to the 'calixarene effect' the tetraphosphorylated calixarenes are more effective extractants for the metal cations than their acyclic analogs or some industrial extractants such as, taken for comparison, trialkylphosphinoxides, carbamoylphosphin oxide, bis-2-diethylhexyl phosphoric acid.

IT 325814-49-1 823219-78-9

(starting materials in synthesis of phosphomethylated calixarenes)

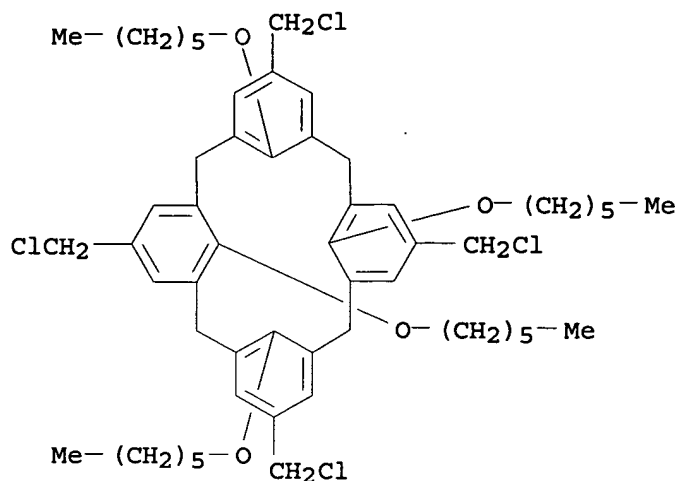
RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX
NAME)



RN 823219-78-9 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(hexyloxy) - (CA
INDEX NAME)



CC 68-2 (Phase Equilibriums, Chemical Equilibriums, and Solutions)

Section cross-reference(s): 25, 71

IT 325814-49-1 476687-10-2 823219-78-9

(starting materials in synthesis of phosphomethylated calixarenes)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 11 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:326420 HCAPLUS

DOCUMENT NUMBER: 140:339079

TITLE: Preparation of chloromethylated calix[4]arene
mixtures for negative electron beam resists

INVENTOR(S): Momota, Junji; Oshima, Eiji

PATENT ASSIGNEE(S): Tokuyama Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

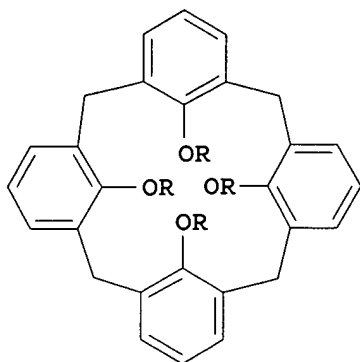
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004123586	A	20040422	JP 2002-288430	20021001
PRIORITY APPLN. INFO.:			JP 2002-288430	20021001

OTHER SOURCE(S): CASREACT 140:339079; MARPAT 140:339079

ED Entered STN: 22 Apr 2004

GI



I

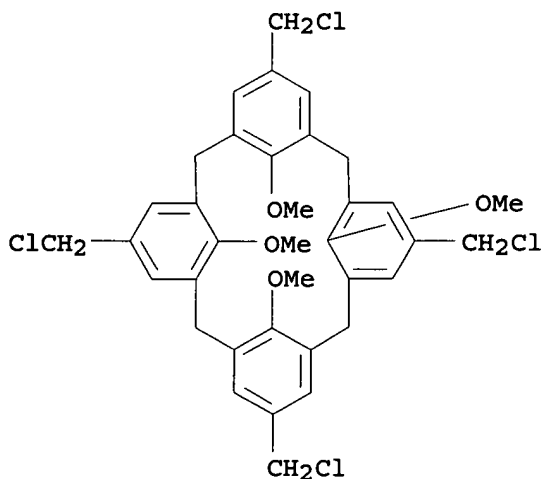
AB Calix[4]arenes I [R = (un)substituted C1-10 alkyl] are chloromethylated by HCl and HCHO in reaction systems containing 10-30 weight% H₂O to give mixts. of tetrakis- and tris(chloromethylated) I. I (R = Me) (1.21 g) was treated with a mixture of 1,4-dioxane, AcOH, HCl, H₃PO₄, and 16 weight% H₂O under reflux for 2 h to give 0.85 g 51:41 mixture of 5,11,17,23-tetrakis(chloromethyl)-I (R = Me) and 5,11,17-tris(chloromethyl)-I (R = Me).

IT 139934-98-8P 325814-49-1P

(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam resists)

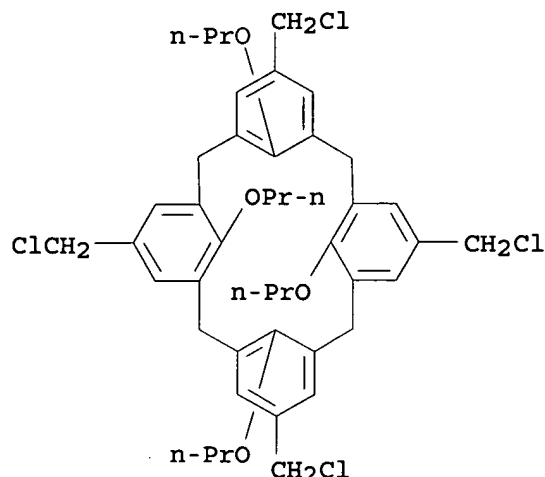
RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



IC ICM C07C041-22
ICS C07C043-225
CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 74
IT 139934-98-8P 325814-49-1P 673458-26-9P
680223-95-4P
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam resists)

L24 ANSWER 12 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:220297 HCAPLUS

DOCUMENT NUMBER: 140:279682

TITLE: Resist and method of forming resist pattern

INVENTOR(S): Ochiai, Yukinori; Ishida, Masahiko; Fujita, Junichi; Ogura, Takashi; Momoda, Junji; Oshima, Eiji

PATENT ASSIGNEE(S): NEC Corporation, Japan; Tokuyama Corporation

SOURCE: PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004022513	A1	20040318	WO 2003-JP11284	20030904
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003261921	A1	20040329	AU 2003-261921	20030904
EP 1541543	A1	20050615	EP 2003-794216	20030904

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK

US 20060127798 A1 20060615 US 2006-527068 20060104
PRIORITY APPLN. INFO.: JP 2002-262314 A 20020909

WO 2003-JP11284 W 20030904

ED Entered STN: 19 Mar 2004

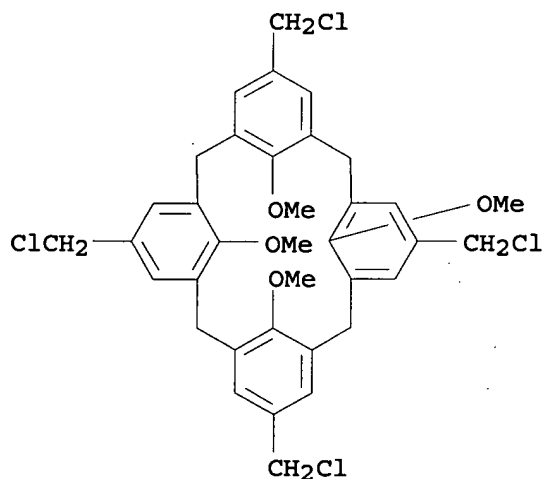
AB A resist comprising either tetrachloromethyltetramethoxycalix[4]arene or trichloromethyltetramethoxycalix[4]arene. The resist containing such a component is soluble in solvents that are favorable from the viewpoint of working environment, such as Et lactate (EL), propylene glycol monomethyl ether (PGME), propylene glycol monomethyl ether acetate (PGMEA), Et propionate, Bu acetate and 2-heptanone, and development can be conducted with not only these solvents but also tetramethylammonium hydroxide. Superhigh resolution of 8 nm can be obtained by exposing the resist to electron beams, and various materials can be microfabricated with the use of the resist as a mask. This resist enables providing a photosensitive resist material of high resolution which is soluble in solvents favorable from the viewpoint of working environment and thus can be developed by solvents favorable from the viewpoint of working environment; and a method of exposure or method of microfabrication with the use of the same.

IT 139934-98-8

(calixarene-containing electron beam resist and method of forming resist pattern for semiconductor device fabrication)

RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX
NAME)



IC ICM C07C043-225

ICS G03F007-038; G03F007-004

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 38

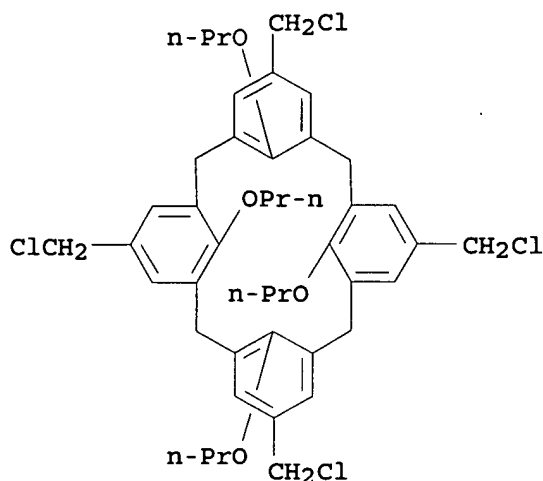
IT 125065-73-8 139934-98-8 673458-26-9 673458-27-0

(calixarene-containing electron beam resist and method of forming resist pattern for semiconductor device fabrication)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR

THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 13 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:761050 HCAPLUS
DOCUMENT NUMBER: 140:357413
TITLE: New organophosphorus calix[4]arene ionophores for
trivalent lanthanide and actinide cations
AUTHOR(S): Atamas, L.; Klimchuk, O.; Rudzevich, V.;
Pirozhenko, V.; Kalchenko, V.; Smirnov, I.;
Babain, V.; Efremova, T.; Varnek, A.; Wipff, G.;
Arnaud-Neu, F.; Roch, M.; Saadioui, M.; Boehmer,
V.
CORPORATE SOURCE: Institute of Organic Chemistry of the National
Academy of Sciences of Ukraine, Kiev, 02094/94,
Ukraine
SOURCE: Journal of Supramolecular Chemistry (2003), Volume
Date 2002, 2(4-5), 421-427
CODEN: JSCOC9; ISSN: 1472-7862
PUBLISHER: Elsevier Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 140:357413
ED Entered STN: 29 Sep 2003
AB New calix[4]arene phosphoryl derivs. were prepared, starting from a
calix[4]arene (cone conformer) bearing four P(O)-H functional groups
at the wide rim as synthon. Reaction of 25,26,27,28-tetrapropoxy-
5,11,17,23-tetrakis(chloromethyl)calix[4]arene (7) with PhP(OiPr)₂
gave the 5,11,17,23-tetrakis[(isopropoxy)phenylphosphinyl] derivative (8),
which was reduced to hydro(phenyl)phosphinyl derivative (9) and converted
to Z[CH₂PO(Ph)CH₂CONBu₂]₄ and Z[CH₂PO(Ph)CH₂CH₂POPh₂]₄ (10, 11; Z =
25,26,27,28-tetrapropoxycalix[4]arene-5,11,17,23-tetrayl). Binding
properties of 10 and 11 towards trivalent lanthanide and actinide
cations are investigated by complexation studies in methanol, and
liquid-liquid extraction studies. The carbamoylmethylphosphine oxide and
diphosphine dioxide derivs. display the "calixarene effect", i.e.,
they are more efficient than their constitutive binding sites. The
studies also reveal the importance of the attachment mode of
CMPO-functions to the calixarene platform for the cation binding
properties.
IT 325814-49-1
(phosphinylation; preparation of phosphinyl-substituted calix[4]arenes
and complexation with lanthanides and actinides)
RN 325814-49-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX
NAME)



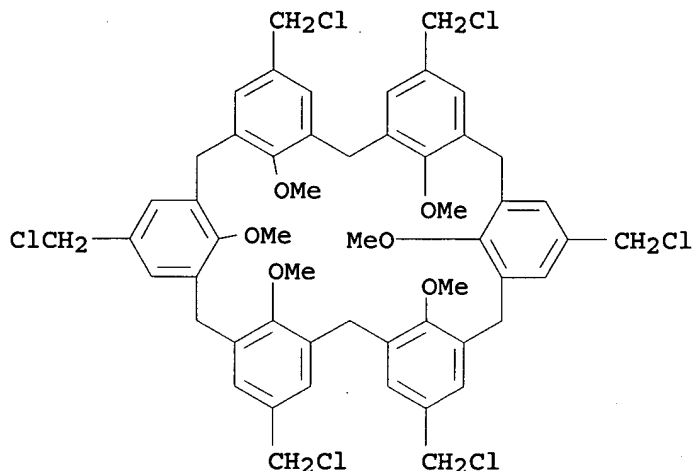
CC 29-7 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 25
 IT 2155-96-6, Diphenylvinylphosphine 2567-59-1, N,N-Dibutyl-2-chloroacetamide 325814-49-1
 (phosphinylation; preparation of phosphinyl-substituted calix[4]arenes and complexation with lanthanides and actinides)
 REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 14 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:735194 HCAPLUS
 DOCUMENT NUMBER: 139:252516
 TITLE: Photoresists comprising high-purity calixarenes with suppressed crystallization, and resist pattern formation and micromachining using them
 INVENTOR(S): Fujita, Junichi; Ishida, Masahiko; Ochiai, Yukinori; Yamamoto, Hiromasa; Tono, Seiji
 PATENT ASSIGNEE(S): NEC Corp., Japan; Tokuyama Corp.
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003262950	A	20030919	JP 2002-66302	20020312
JP 3957533	B2	20070815		
PRIORITY APPLN. INFO.:			JP 2002-66302	20020312

ED Entered STN: 19 Sep 2003
 AB The photoresists, useful for semiconductor device fabrication, contain ≥ 2 types of high-purity calixarenes as binders. Patterns with size ≤ 10 nm are formed with this invention.
 IT 124006-38-8
 (photoresists comprising high-purity calixarenes with suppressed crystallization)
 RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



IC ICM G03F007-004
ICS G03F007-40; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 124006-38-8
(photoresists comprising high-purity calixarenes with suppressed crystallization)

L24 ANSWER 15 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:563319 HCAPLUS
DOCUMENT NUMBER: 139:260903
TITLE: Capsule-like Assemblies in Polar Solvents
AUTHOR(S): Zadnani, Reza; Junkers, Matthias; Schrader, Thomas; Grawe, Thomas; Kraft, Arno
CORPORATE SOURCE: Fachbereich Chemie, Universitaet Marburg, Marburg, 35032, Germany
SOURCE: Journal of Organic Chemistry (2003), 68(17), 6511-6521
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:260903

ED Entered STN: 24 Jul 2003

AB Calix[4]arene derivs. with four anionic groups at their upper rim form discrete 1:1 complexes with complementary calix[4]arene derivs. bearing four cationic groups at their upper rim. Each cation is bound by two anions, and vice versa, in a mutual chelate arrangement, reinforced by a network of ionic hydrogen bonds. These multiple electrostatic interactions lead to the formation of highly stable capsule-like assemblies even in polar protic solvents such as methanol and water. In the capsule interior a cavity is formed that is in principle large enough for the encapsulation of small aliphatic and aromatic guests (170-230 Å). Monte Carlo simulations in water reproducibly lead to the same regular optimized structures. These

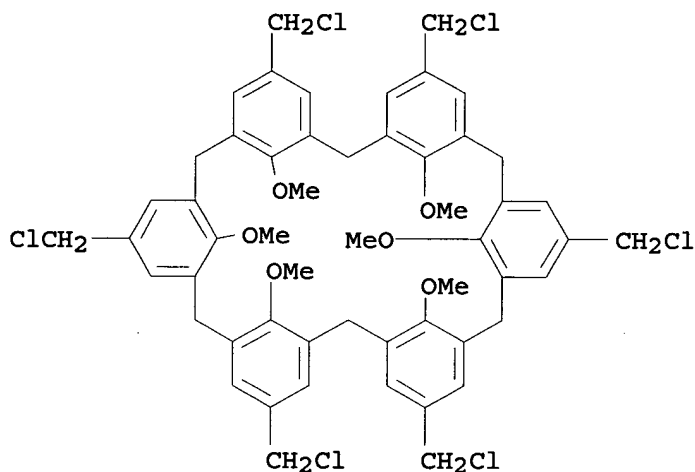
differ mainly by their inner volume and flexibility, as demonstrated by mol. dynamics calcns. Most half-spheres can be synthesized by way of the tetrakis(chloromethyl) or the tetrabromocalix[4]arene intermediate. Oppositely charged calix[6]arenes also form strong complexes, but no indication was found for a lock in the cone conformation. The formation of the ball-shaped complexes from calix[4]arene building blocks was studied with Job plots, NMR titrns., NOESY, and variable-temperature expts., as well as ESI-MS measurements. Investigations aimed at the inclusion of various guest mols. were carried out with alcs., sulfoxides, benzene derivs., and ammonium, as well as pyrazinium guests. Although binding isotherms were generated with cationic guests, these must be considered to be loosely associated around the seam rather than included inside the capsule.

IT 124006-38-8P 435332-10-8P

(mol. dynamics simulation, NMR titrns., NOESY, and ESI-MS on capsule-like assemblies of calixarenes in polar solvents)

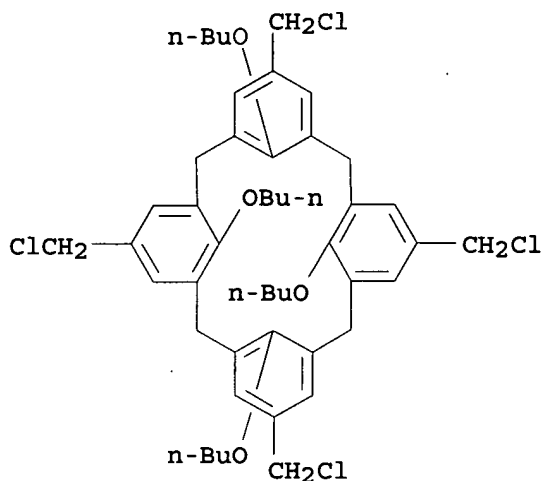
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 435332-10-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX NAME)

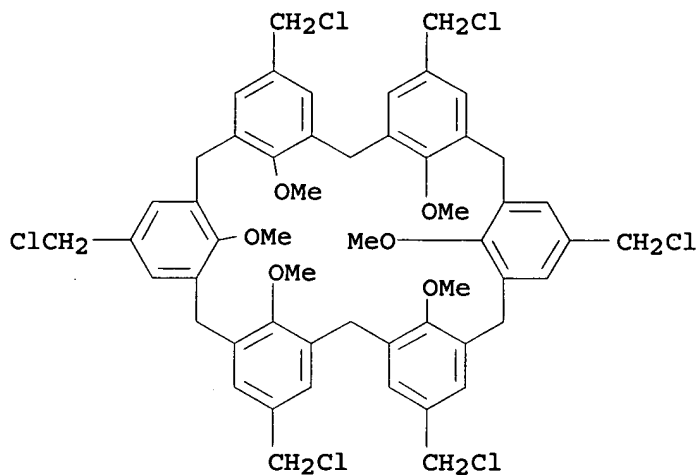


CC 22-10 (Physical Organic Chemistry)
 Section cross-reference(s): 25, 73, 80
 IT 102088-39-1P 124006-38-8P 202348-47-8P
 435332-10-8P 435332-12-0P 435332-19-7P 435332-23-3P
 435332-25-5P 436148-33-3P 436148-35-5P 464172-15-4P
 602299-46-7P 602299-49-0P
 (mol. dynamics simulation, NMR titrns., NOESY, and ESI-MS on
 capsule-like assemblies of calixarenes in polar solvents)
 REFERENCE COUNT: 77 THERE ARE 77 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L24 ANSWER 16 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:547063 HCAPLUS
 DOCUMENT NUMBER: 139:237578
 TITLE: Sub-10-nm-scale lithography using
 p-chloromethyl-methoxy-calix[4]arene resist
 AUTHOR(S): Ishida, Masahiko; Fujita, Jun-ichi; Ogura,
 Takashi; Ochiai, Yukinori; Ohshima, Eiji; Momoda,
 Junji
 CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corp.,
 Tsukuba, 305-8501, Japan
 SOURCE: Japanese Journal of Applied Physics, Part 1:
 Regular Papers, Short Notes & Review Papers
 (2003), 42(6B), 3913-3916
 CODEN: JAPNDE
 PUBLISHER: Japan Society of Applied Physics
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 17 Jul 2003
 AB The authors examined the properties of p-chloromethylmethoxycalix[4]arene (CMC4) as a high-resolution neg.-tone resist for electron-beam (EB) lithog. CMC4's highest resolution was less than 8 nm, and of the calixarene resists studied so far, it has the highest solubility in Cl-free solvents. Comparison with the p-chloromethylmethoxycalix[6]arene (CMC6) resist revealed that the CMC4 resist's low mol. weight and low crystallinity were the origin of its high resolution and high solubility
 IT 124006-38-8
 (comparison compound; properties of p-chloromethylmethoxycalix[4]arene as high-resolution neg.-tone resist for electron-beam lithog.)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)

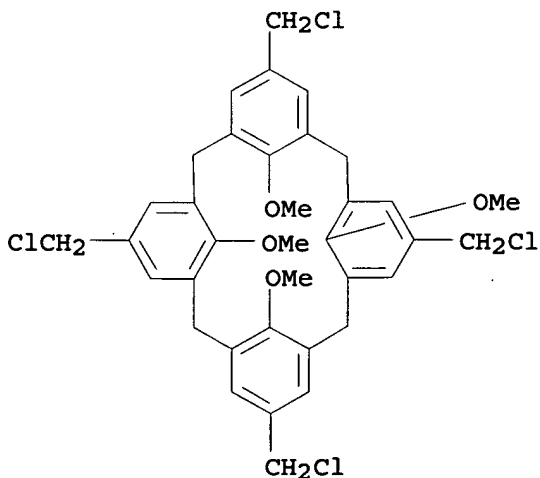


IT 139934-98-8

(properties of p-chloromethylmethoxycalix[4]arene as high-resolution
neg.-tone resist for electron-beam lithog.)

RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX
NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

IT 124006-38-8

(comparison compound; properties of p-chloromethylmethoxycalix[4]aren
e as high-resolution neg.-tone resist for electron-beam lithog.)

IT 139934-98-8

(properties of p-chloromethylmethoxycalix[4]arene as high-resolution neg.-tone resist for electron-beam lithog.)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 17 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:527539 HCAPLUS

DOCUMENT NUMBER: 139:85127

TITLE: Preparation of solvent-soluble calixarenes and their smooth films

INVENTOR(S): Oshima, Eiji; Takenaka, Junji

PATENT ASSIGNEE(S): Tokuyama Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

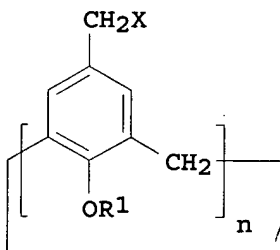
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003192649	A	20030709	JP 2001-397522	20011227
PRIORITY APPLN. INFO.:			JP 2001-397522	20011227

OTHER SOURCE(S): MARPAT 139:85127

ED Entered STN: 10 Jul 2003

GI



I

AB Title compds. I [$n = 4-10$; $R_1 = (\text{cyclo})\text{alkyl}$, alkenyl, (meth)acryloyl, etc.; $X = \text{NR}_2\text{R}_3$; $R_2, R_3 = \text{H}$, (un)substituted alkyl, alkenyl, aryl; $R_2 = R_3 \neq \text{H}$; R_2R_3 may be linked to form ring], useful for electron beam resists (no data), are prepared by amination of I ($n, R_1 = \text{same as above}$; $X = \text{Cl}$). Thus, I ($n = 6, R_1 = \text{Me}, X = \text{Cl}$) was aminated by Et_2NH at 50° for 3 h in CHCl_3 to give 74% I ($n, R_1 = \text{same as above}$; $X = \text{NET}_2$), which showed high solubility in various organic solvents and no crystallization when formed into a film.

IT 124006-38-8 124006-39-9 139934-98-8

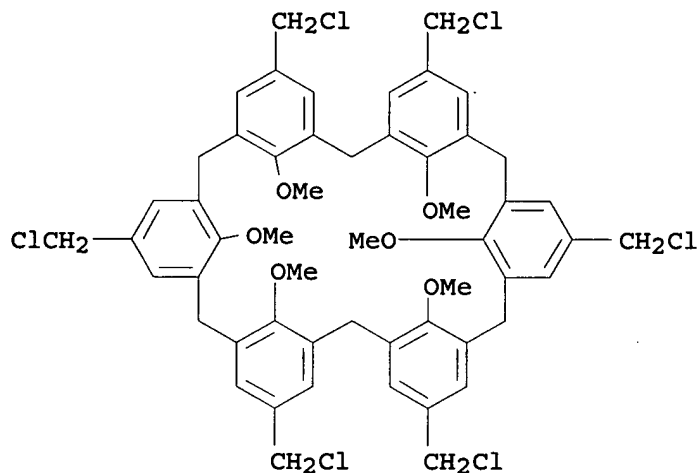
476687-13-5 556066-52-5 556066-54-7

556066-55-8 556066-56-9

(preparation of solvent-soluble calixarenes and their crystal-free films for electron beam resists)

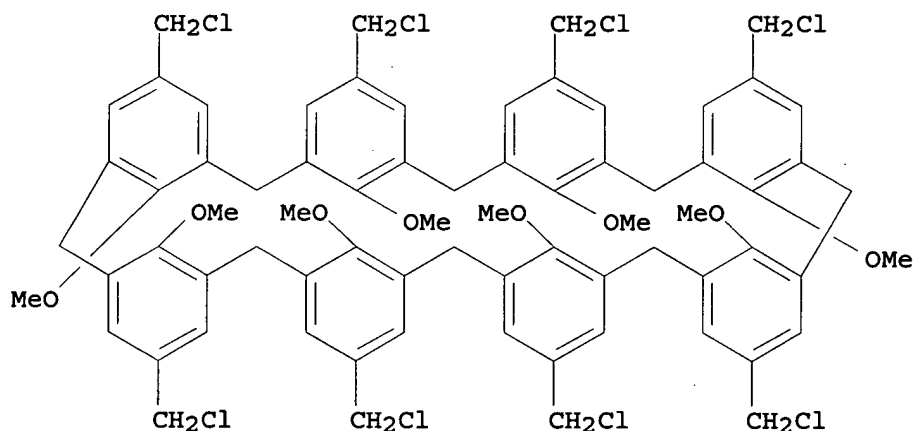
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



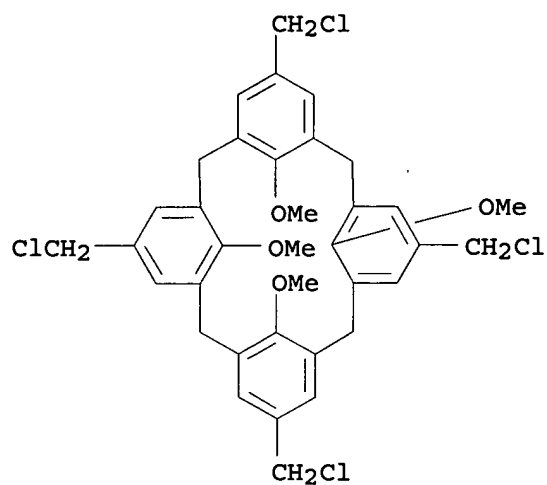
RN 124006-39-9 HCAPLUS

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene, 5,11,17,23,29,35,41,47-octakis(chloromethyl)-49,50,51,52,53,54,55,56-octamethoxy- (CA INDEX NAME)

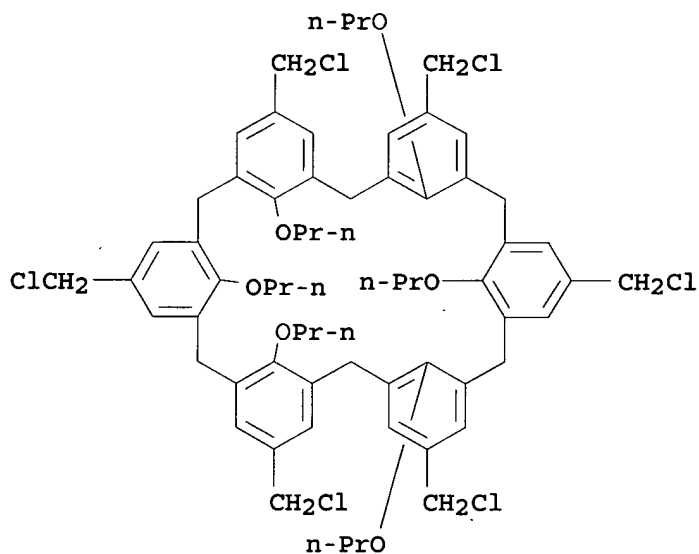


RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)

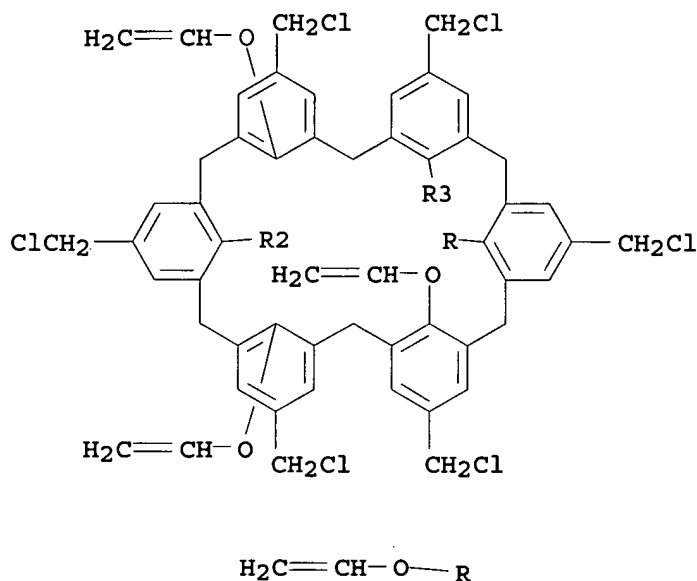


RN 476687-13-5 HCAPLUS
 CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
 1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
 35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
 37,38,39,40,41,42-hexapropoxy- (CA INDEX NAME)

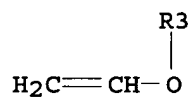
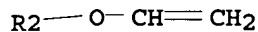


RN 556066-52-5 HCAPLUS
 CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
 1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
 35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
 37,38,39,40,41,42-hexakis(ethenyloxy)- (CA INDEX NAME)

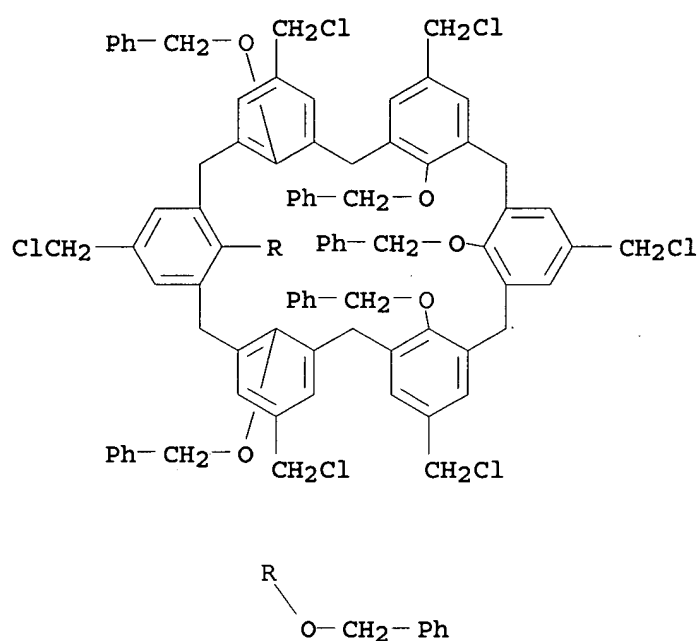
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PAGE 2-A

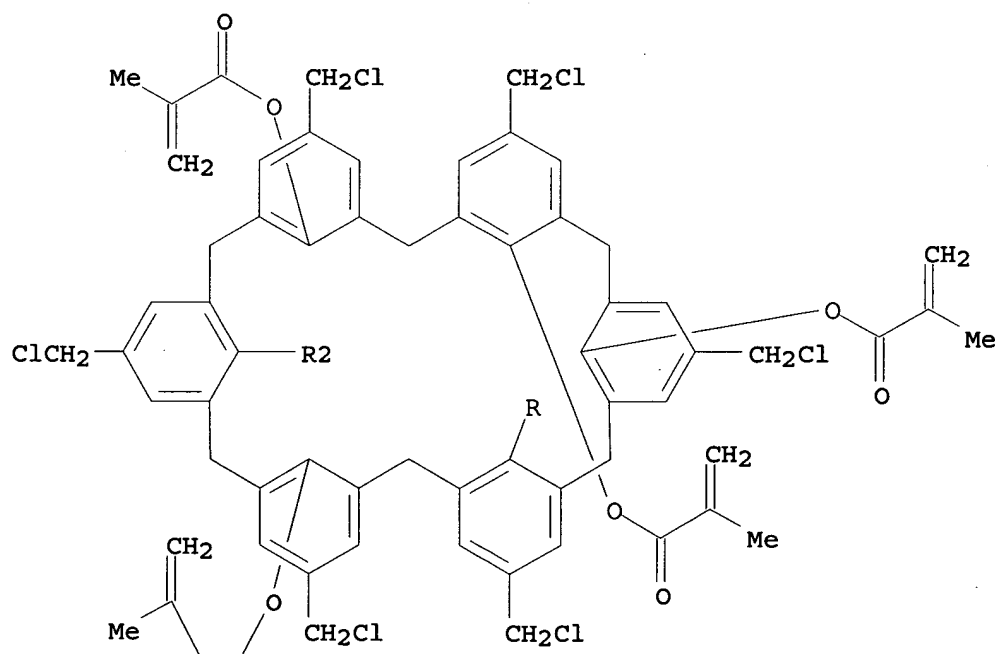


RN 556066-54-7 HCAPLUS
 CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
 1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
 35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
 37,38,39,40,41,42-hexakis(phenylmethoxy) - (CA INDEX NAME)

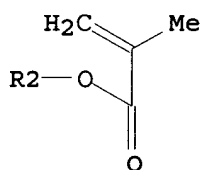
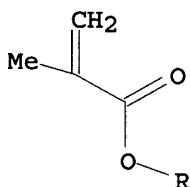


RN 556066-55-8 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 5,11,17,23,29,35-hexakis(chloromethyl)heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexayl ester (9CI) (CA INDEX NAME)

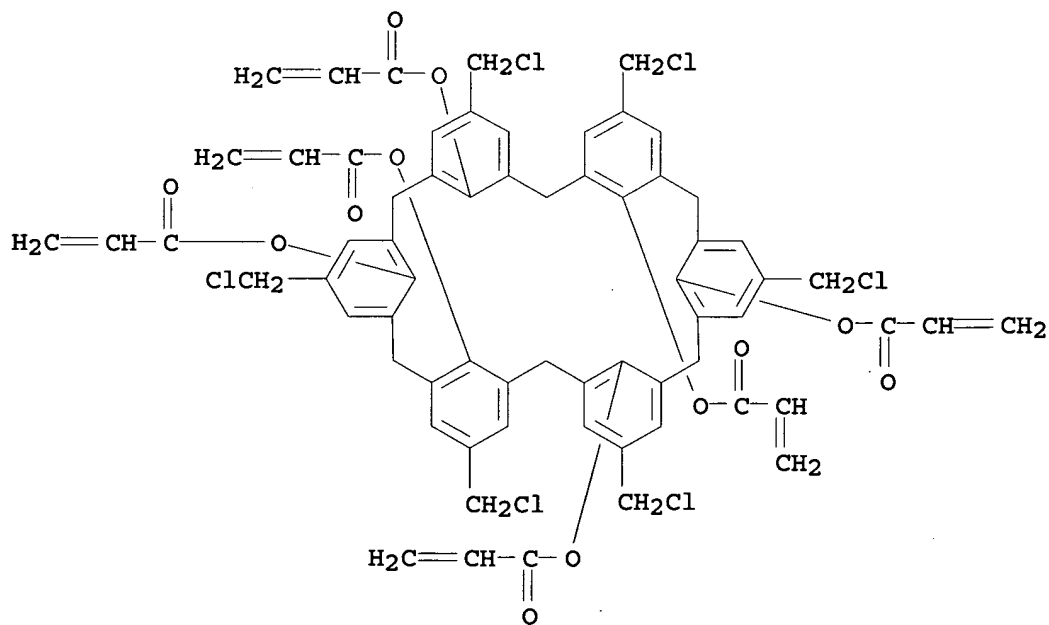
PAGE 1-A



PAGE 2-A



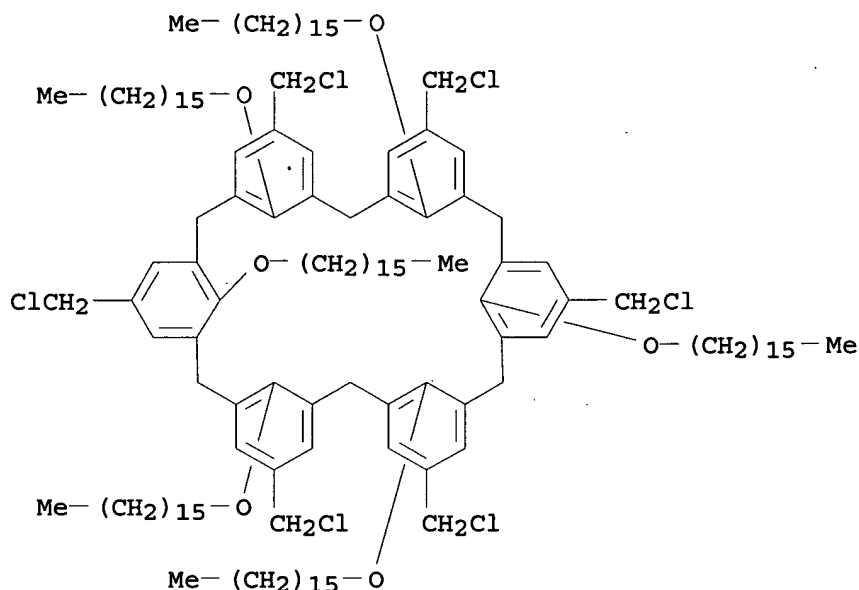
RN 556066-56-9 HCAPLUS
 CN 2-Propenoic acid, 5,11,17,23,29,35-hexakis(chloromethyl)heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexayl ester (9CI) (CA INDEX NAME)



IC ICM C07C217-58
 ICS C07C213-02; C07C219-28; C07D295-08; G03F007-038

CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 74
IT 109-73-9, Butylamine, reactions 109-83-1, (2-Hydroxyethyl)methylamine 109-89-7, Diethylamine, reactions
110-89-4, Piperidine, reactions 111-42-2, Diethanolamine, reactions
122-39-4, Diphenylamine, reactions 124-02-7, Diallylamine
142-84-7, Dipropylamine 39216-86-9 124006-38-8
124006-39-9 139934-98-8 476687-13-5
556066-51-4 556066-52-5 556066-53-6 556066-54-7
556066-55-8 556066-56-9
(preparation of solvent-soluble calixarenes and their crystal-free films
for electron beam resists)

L24 ANSWER 18 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:459794 HCAPLUS
DOCUMENT NUMBER: 139:155440
TITLE: The Gluing of a Langmuir-Blodgett Bilayer
AUTHOR(S): Yan, Xun; Janout, Vaclav; Hsu, James T.; Regen,
Steven L.
CORPORATE SOURCE: Departments of Chemistry and Chemical Engineering,
Lehigh University, Bethlehem, PA, 18015, USA
SOURCE: Journal of the American Chemical Society (2003),
125(27), 8094-8095
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 17 Jun 2003
AB Poly(4-styrenesulfonate) has been used to ionically cross-link (glue
together) a single Langmuir-Blodgett bilayer derived from an
amphiphilic calix[6]arene bearing six hexadecyl and six
methylene-trimethylammonium groups. The resulting film is of high
quality and robustness, as judged by its He/N₂ permeation selectivity
and by its ability to withstand exposure to chloroform solvent. The
creation of a stable organic membrane, having a thickness that is less
than 6 nm and a He/N₂ permeation selectivity of ca. 305, represents a
milestone for LB technol.
IT 471296-05-6
(to synthesize amphiphilic calix[6]arene)
RN 471296-05-6 HCAPLUS
CN Heptacyclo[31.3.1.13,7,19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexakis(hexadecyloxy) - (CA INDEX NAME)



CC 66-3 (Surface Chemistry and Colloids)

Section cross-reference(s): 25

IT 75-50-3, Trimethylamine, reactions 123-91-1, 1,4-Dioxane, reactions
471296-05-6

(to synthesize amphiphilic calix[6]arene)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 19 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:229922 HCAPLUS

DOCUMENT NUMBER: 139:85323

TITLE: Synthesis and extractive properties of
hexaphosphorylated calix[6]arenes

AUTHOR(S): Rudzevich, Yu. I.; Drapailo, A. B.; Rudzevich, V.
L.; Miroshnichenko, V. I.; Kal'chenko, V. I.;
Smirnov, I. V.; Babain, V. A.; Varnek, A. A.;
Wipff, G.

CORPORATE SOURCE: Institute of Organic Chemistry, National Academy
of Sciences of Ukraine, Kiev, Ukraine

SOURCE: Russian Journal of General Chemistry (Translation
of Zhurnal Obshchei Khimii) (2002), 72(11),
1736-1742

CODEN: RJGCEK; ISSN: 1070-3632

PUBLISHER: MAIK Nauka/Interperiodica Publishing

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:85323

ED Entered STN: 25 Mar 2003

AB A series of calix[6]arenes substituted with phosphoryl functional
groups were prepared by the Arbuzov reaction of
hexakis(chloromethyl)calix[6]arene hexamethyl ether with iso-Pr esters
of trivalent phosphorus acids, followed by appropriate chemical
transformations. Mol. modeling and NMR data show that phosphorylated
calix[6]arenes exist in the stereochem. labile 1,2-alternate
conformation. The extractive power of these compds. with respect to

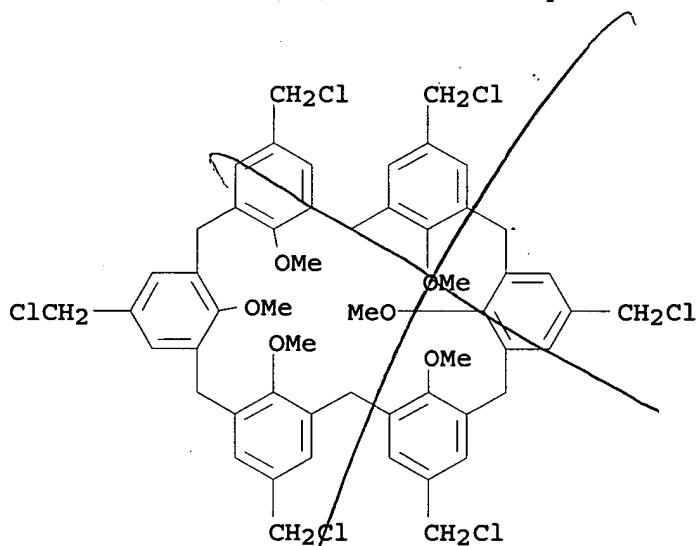
americium and europium was studied. Due to the cooperative binding of the metal cation with phosphoryl groups, the phosphorylated calixarenes are more effective extractants than their acyclic analogs and com. organophosphorus extractants.

IT 124006-38-8

(preparation of hexaphosphorylated calixarenes via Arbuzov reaction followed by chemical transformations and their extraction performance for recovery of europium-152 and americium-241)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 68

IT 116-17-6 27350-46-5 36238-99-0 76297-11-5 124006-38-8
556837-86-6

(preparation of hexaphosphorylated calixarenes via Arbuzov reaction followed by chemical transformations and their extraction performance for recovery of europium-152 and americium-241)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 20 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:624670 HCAPLUS

DOCUMENT NUMBER: 137:311855

TITLE: A Polymerized Calix[6]arene Monolayer Having Gas Permeation Selectivity that Exceeds Knudsen Diffusion

AUTHOR(S): Yan, Xun; Janout, Vaclav; Hsu, James T.; Regen, Steven L.

CORPORATE SOURCE: Departments of Chemistry and Chemical Engineering, Lehigh University, Bethlehem, PA, 18015, USA

SOURCE: Journal of the American Chemical Society (2002), 124(37), 10962-10963

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 20 Aug 2002

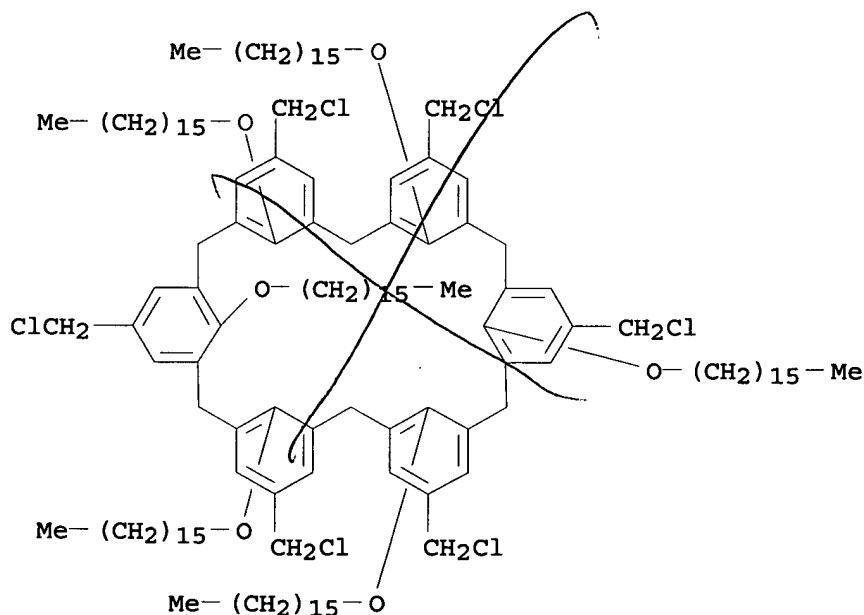
AB A polymerized monolayer of 5,11,17,23,29,35-hexamercaptomethyl-37,38,40,41,42-hexakis-(1-n hexadecyloxy)calix[6]arene was synthesized on the surface of an ca. 15 μm -thick film derived from poly[1-(trimethylsilyl)-1-propyne] (PTMSP). This 2.6 nm-thick polymeric membrane having a permeation selectivity toward He and SF₆ that exceeds Knudsen diffusion, represents a milestone in the area of gas sepns. Analogous membranes made from a calix[6]arene that contains amidoxime headgroups showed Knudsen diffusion characteristics.

IT 471296-05-6P

(crosslinked calix[6]arene monolayer having gas permeation selectivity toward He and SF₆ that exceeds Knudsen diffusion)

RN 471296-05-6 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexakis(hexadecyloxy) - (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 66

IT 471296-05-6P 471296-06-7P

(crosslinked calix[6]arene monolayer having gas permeation selectivity toward He and SF₆ that exceeds Knudsen diffusion)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 21 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

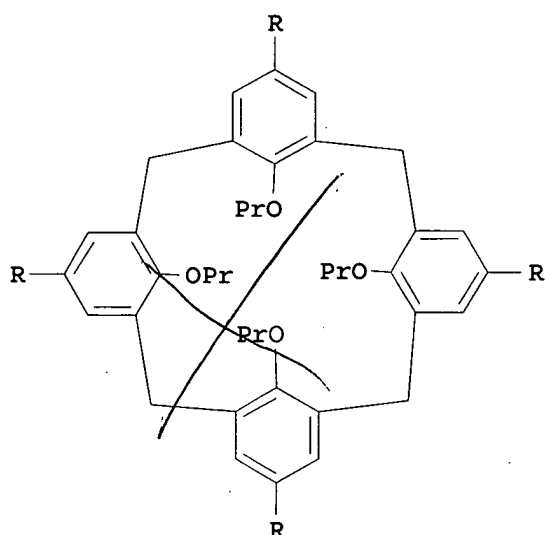
ACCESSION NUMBER: 2002:623780 HCAPLUS

DOCUMENT NUMBER: 138:4649

TITLE: Phosphorylated calixarenes in design of receptors for metal cations and organic molecules

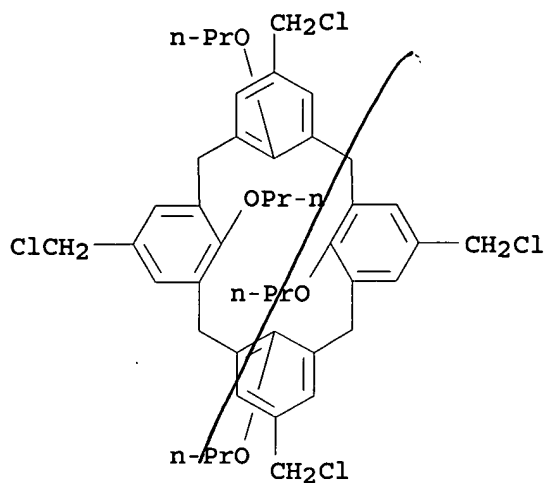
AUTHOR(S): Kalchenko, V.; Atamas, L.; Klimchuk, O.; Rudzevich, V.; Rudzevich, Yu.; Boyko, V.;

CORPORATE SOURCE: Drapailo, A.; Miroschnichenko, S.
 Institute of Organic Chemistry, National Academy
 of Sciences of Ukraine, Kiev, 02094/94, Ukraine
 SOURCE: Phosphorus, Sulfur and Silicon and the Related
 Elements (2002), 177(6-7), 1537-1540
 CODEN: PSSLEC; ISSN: 1042-6507
 PUBLISHER: Taylor & Francis Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 138:4649
 ED Entered STN: 19 Aug 2002
 GI

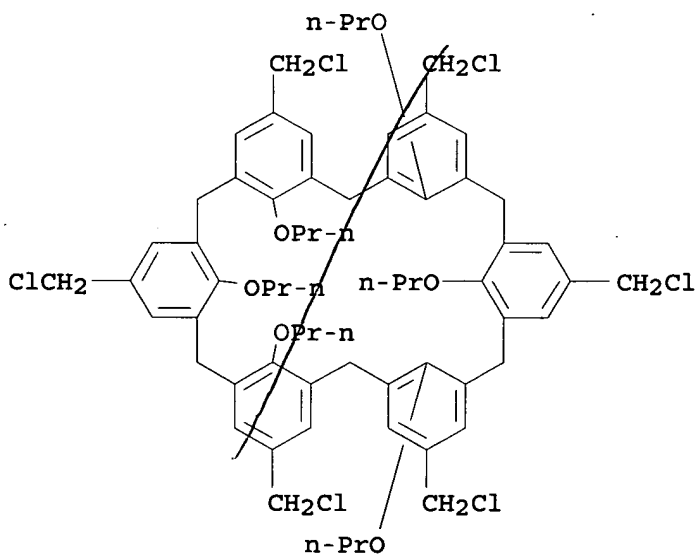


I

AB Calix[4,6]arenes functionalized with phosphine oxide, diphosphine
 dioxide, and carbamoylphosphine oxide groups, which possess high
 binding ability to metal cations or protodonative organic mols. and are
 linked to the wide rim of macrocyclic skeleton by different spacers,
 e.g., I (R = CH₂XCH₂P(O)Ph₂, X = O, S) was synthesized.
 IT 325814-49-1 476687-13-5
 (Arbuzov and Michaelis-Becker reactions in the synthesis of
 phosphorylated calixarenes)
 RN 325814-49-1 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX
 NAME)



RN 476687-13-5 HCAPLUS
 CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
 1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
 35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
 37,38,39,40,41,42-hexapropoxy- (CA INDEX NAME)



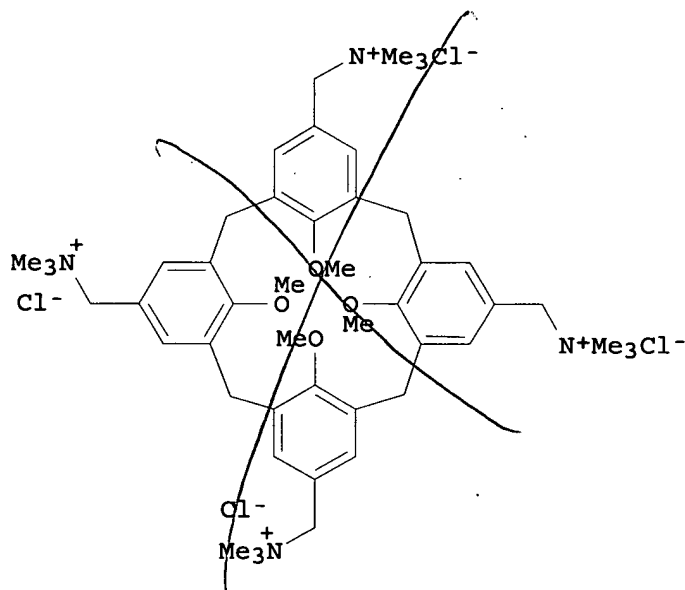
CC 29-7 (Organometallic and Organometalloidal Compounds)
 IT 20625-85-8 42023-31-4 81261-21-4 92556-46-2 325814-49-1
 476687-13-5 476687-23-7 476687-24-8 476687-26-0
 476687-27-1 476687-28-2
 (Arbuzov and Michaelis-Becker reactions in the synthesis of
 phosphorylated calixarenes)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L24 ANSWER 22 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

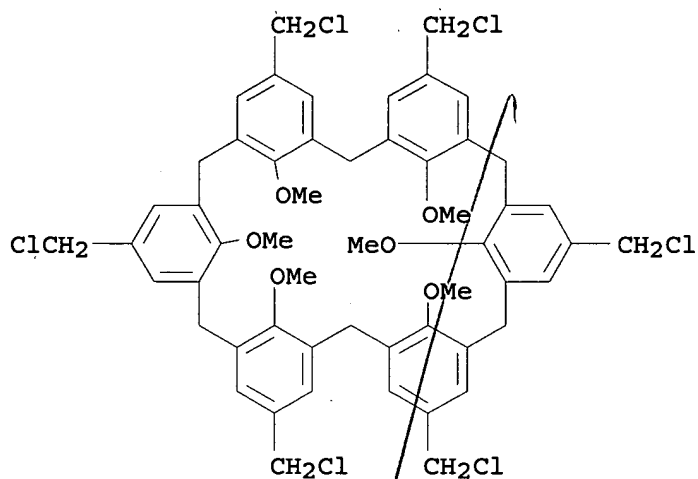
USHA SHRESTHA EIC1700 REM 4B31

ACCESSION NUMBER: 2002:519362 HCAPLUS
 DOCUMENT NUMBER: 137:384434
 TITLE: Water-soluble calixarenes as new inverse phase-transfer catalysts. Their scope in aqueous biphasic alkylations and mechanistic implications
 AUTHOR(S): Shimizu, Shoichi; Suzuki, Takashi; Shirakawa, Seiji; Sasaki, Yasuyuki; Hirai, Choichiro
 CORPORATE SOURCE: Department of Applied Molecular Chemistry and High Technology Research Center, College of Industrial Technology, Nihon University, Chiba, 275-8575, Japan
 SOURCE: Advanced Synthesis & Catalysis (2002), 344(3+4), 370-378
 CODEN: ASCAF7; ISSN: 1615-4150
 PUBLISHER: Wiley-VCH Verlag GmbH
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 137:384434
 ED Entered STN: 12 Jul 2002
 GI



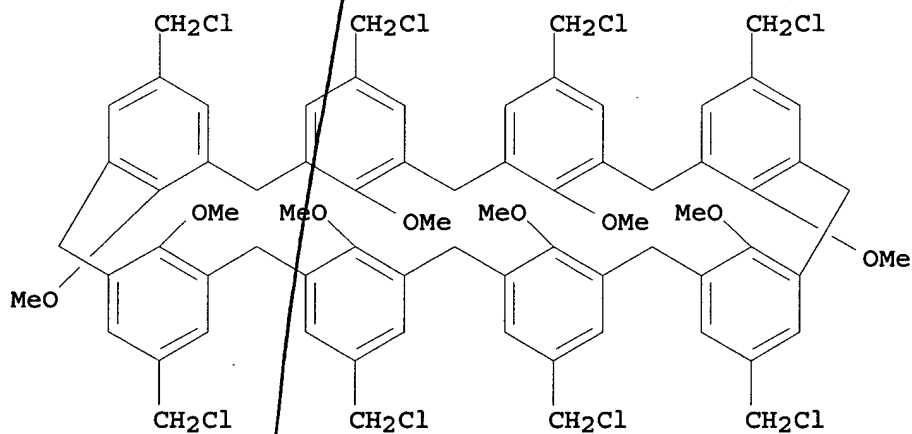
- AB Water-soluble calix[n]arenes (n = 4, 6, 8) containing trimethylammonium groups on the upper rim, e.g. calix[4]arene I, were used as inverse phase-transfer catalysts for alkylation of active methylene compds., alcs., and phenols with alkyl halides in aqueous NaOH solution to give the corresponding alkylated products in good to high yields. The scope of this methodol. in aqueous biphasic alkylation reactions and the mechanistic implications are discussed.
 IT 124006-38-8 124006-39-9 139934-98-8
 (selective aqueous biphasic alkylation of alcs., phenols, and active methylene compds. with alkyl halides using water-soluble calixarenes as inverse phase-transfer catalysts)
 RN 124006-38-8 HCAPLUS
 CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,

35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



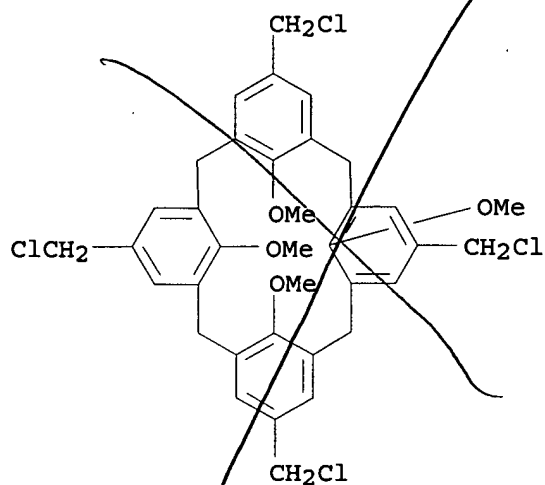
RN 124006-39-9 HCAPLUS

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaeene, 5,11,17,23,29,35,41,47-octakis(chloromethyl)-49,50,51,52,53,54,55,56-octamethoxy- (CA INDEX NAME)



RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosae-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



CC 21-2 (General Organic Chemistry)
 IT 71-36-3, 1-Butanol, reactions 95-13-6, Indene 100-39-0, Benzyl bromide 100-51-6, Benzyl alcohol, reactions 103-79-7, Phenylacetone 106-44-5, 4-Methylphenol, reactions 107-18-6, Allyl alcohol, reactions 108-95-2, Phenol, reactions 110-52-1, 1,4-Dibromobutane 111-25-1, 1-Bromohexane 111-27-3, 1-Hexanol, reactions 111-83-1, Octyl bromide 111-85-3, Octyl chloride 123-54-6, Acetylacetone, reactions 132-75-2, 1-Naphthaleneacetonitrile 140-29-4, Benzeneacetonitrile 557-35-7, 2-Bromooctane 589-15-1 589-29-7, 1,4-Benzenedimethanol 614-16-4, Benzoylacetonitrile 629-27-6, Octyl iodide 939-26-4, 2-(Bromomethyl)naphthalene 1119-51-3, 5-Bromo-1-pentene 1592-38-7, 2-Naphthalenemethanol 2517-43-3, 3-Methoxy-1-butanol 2550-36-9, (Bromomethyl)cyclohexane 2856-63-5 3163-27-7, 1-(Bromomethyl)naphthalene 6940-78-9, 1-Bromo-4-chlorobutane 18880-00-7 124006-38-8 124006-39-9 139934-98-8
 (selective aqueous biphasic alkylation of alcs., phenols, and active methylene compds. with alkyl halides using water-soluble calixarenes as inverse phase-transfer catalysts)

REFERENCE COUNT: 92 THERE ARE 92 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 23 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:336614 HCAPLUS

DOCUMENT NUMBER: 137:225695

TITLE: The structure of new heterometallic Ru/M (M = Cu, Ni, Co, Zn) complexes investigated by combined spectroscopic and modeling studies

AUTHOR(S): Torgov, V.; Erenburg, S.; Bausk, N.; Stoyanov, E.; Kalchenko, V.; Varnek, A.; Wipff, G.

CORPORATE SOURCE: Institute of Inorganic Chemistry, Siberian Branch Ac. Sci. Russ., Novosibirsk, Russia

SOURCE: Journal of Molecular Structure (2002), 611(1-3), 131-138

CODEN: JMOSB4; ISSN: 0022-2860

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 137:225695

ED Entered STN: 06 May 2002

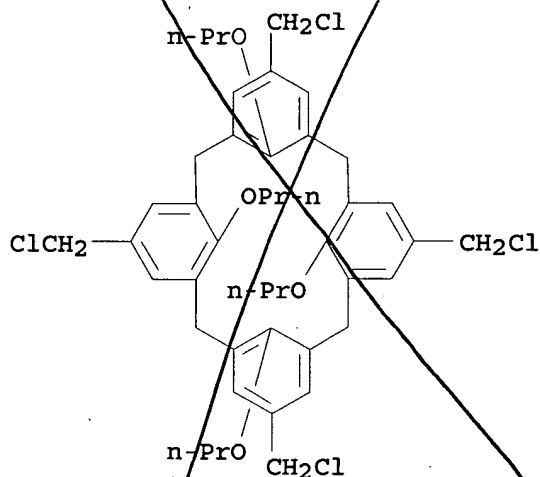
AB This article concerns new heterometallic Ru/M (M = Cu, Ni, Co, Zn) complexes formed upon solvent extraction of [RuNO(NO₂)₄OH]₂- by trioctylphosphine oxide or calix[4]arene-tetraphosphine oxide. They were characterized by IR, UV, EXAFS, and mass spectroscopies in hexane and dichloroethane solns. and by quantum mechanics calcns. (PM3-tm, DFT B3LYP) in the gas phase. In these complexes, Ru and M are connected by OH and NO₂ bridging groups.

IT 325814-49-1

(for preparation of calix[4]arene-tetraphosphine oxide)

RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX
NAME)



CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 79

IT 24610-84-2 325814-49-1

(for preparation of calix[4]arene-tetraphosphine oxide)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 24 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:294402 HCAPLUS

DOCUMENT NUMBER: 137:33060

TITLE: Self-Assembly of Molecular Capsules in Polar
Solvents

AUTHOR(S): Zadnarm, Reza; Schrader, Thomas; Grawe, Thomas;
Kraft, Arno

CORPORATE SOURCE: Fachbereich Chemie, Universitaet Marburg, Marburg,
35032, Germany

SOURCE: Organic Letters (2002), 4(10), 1687-1690
CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 137:33060

ED Entered STN: 21 Apr 2002

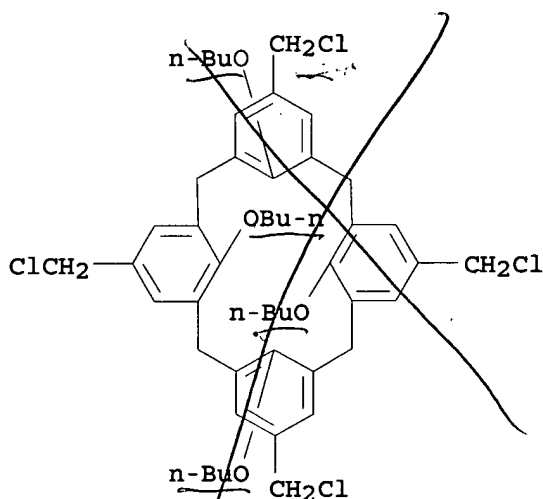
AB We present a novel type of mol. capsule formed by self-organization of calix[4]arenes with several oppositely charged functional groups located at their upper rims. In highly polar solvents, the complementary half-spheres form stable 1:1 complexes with association consts. of up to $7 \times 10^5 \text{ M}^{-1}$ in methanol. The cavity inside the capsules is large enough for the inclusion of small aliphatic or (hetero)aromatic guest mols.

IT 435332-10-8

(starting material; self-organization of calix[4]arenes with several oppositely charged functional groups located at their upper rims)

RN 435332-10-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX
NAME)



CC 22-13 (Physical Organic Chemistry)

IT 435332-10-8 436148-33-3 464172-15-4

(starting material; self-organization of calix[4]arenes with several oppositely charged functional groups located at their upper rims)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 25 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:207118 HCAPLUS

DOCUMENT NUMBER: 136:385933

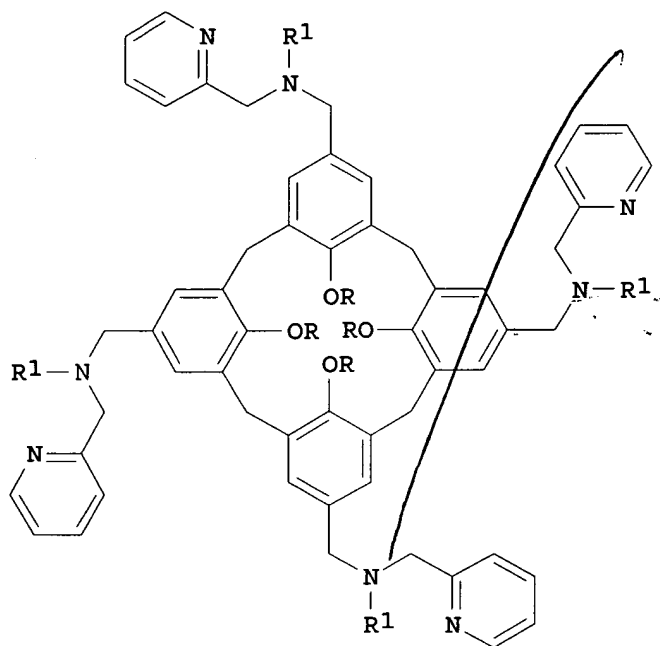
TITLE: Calix[4]arenes Linked to Multiple Bidentate N-Donors: Potential Ligands for Synthetic Modeling of Multinuclear Metalloenzymes

AUTHOR(S): Spencer, Douglas J. E.; Johnson, Bryan J.; Johnson, Brian J.; Tolman, William B.

CORPORATE SOURCE: Department of Chemistry and Center for Metals in Biocatalysis, University of Minnesota, Minneapolis, MN, 55455, USA

SOURCE: Organic Letters (2002), 4(8), 1391-1393
CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 136:385933
 ED Entered STN: 20 Mar 2002
 GI



I

AB Calixarenes incorporating three or four bidentate diamines or heterocyclylmethanamines attached at the "upper rim" such as I (R = EtOCH₂CH₂; R₁ = Me₂CH, PhCH₂) were prepared via practical protocols. Alkylation of a tetrahydroxycalix[4]arene with excess 2-ethoxyethyl bromide and sodium hydride gave a tetra(2-ethoxyethyl)calixarene; tetraformylation, reduction of the aldehyde groups with sodium borohydride, and chlorination with thionyl chloride gave a tetrachloromethyl calixarene which is a versatile intermediate for the preparation of substituted calixarenes. An analogous method using a trisformylation reaction gave the corresponding tris(chloromethyl)calixarene. Substitution of the chloromethyl groups with amines such as N,N,N'-trimethyl-1,3-propanediamine, N-isopropyl-2-pyridinemethanamine, and N-isopropyl-2-quinolinemethanamine yielded calixarenes such as I (R = EtOCH₂CH₂; R₁ = Me₂CH, PhCH₂). Calixarenes such as I were designed as potential analogs of multinuclear metalloenzymes. The crystal structure of I (R = EtOCH₂CH₂; R₁ = PhCH₂) was determined by X-ray crystallog.

IT 155057-44-6P

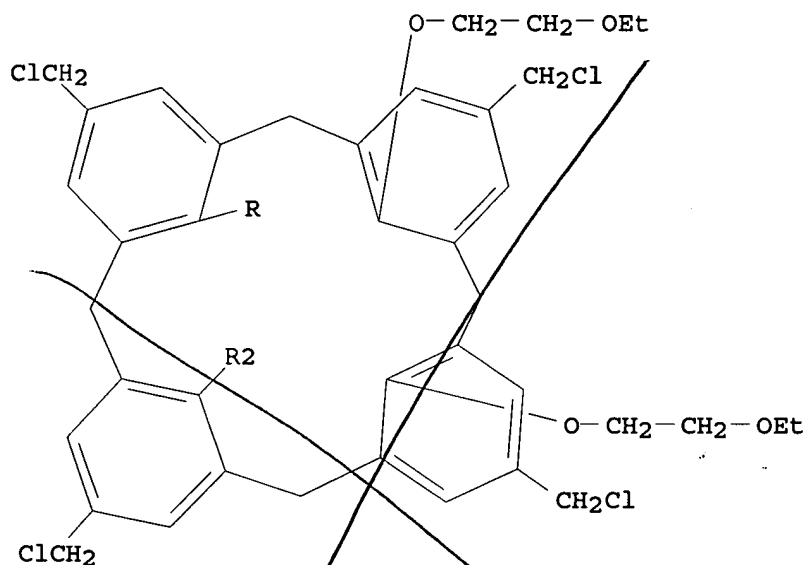
(preparation of tri- and tetra-substituted calixarene substituted with bidentate amine moieties as potential mimics of multinuclear metalloenzymes)

RN 155057-44-6 HCAPLUS

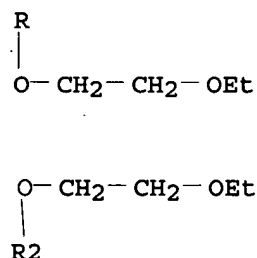
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,

5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy) -
(CA INDEX NAME)

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CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

Section cross-reference(s): 75

IT 18081-89-5P 58669-30-0P 105487-97-6P 154459-66-2P
155057-44-6P 166940-40-5P 426836-40-0P 426836-41-1P
426836-42-2P

(preparation of tri- and tetra-substituted calixarene substituted with
bidentate amine moieties as potential mimics of multinuclear
metalloenzymes)

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 26 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:545245 HCAPLUS

DOCUMENT NUMBER: 135:278577

TITLE: Selective adsorption of lead ion on calix[4]arene
carboxylate resin supported by polyallylamine

AUTHOR(S): Ohto, Keisuke; Tanaka, Yuki; Yano, Masayuki; Shinohara, Takaaki; Murakami, Emi; Inoue, Katsutoshi

CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Science and Engineering, Saga University, Saga, 840-8502, Japan

SOURCE: Solvent Extraction and Ion Exchange (2001), 19(4), 725-741
CODEN: SEIEDB; ISSN: 0736-6299

PUBLISHER: Marcel Dekker, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

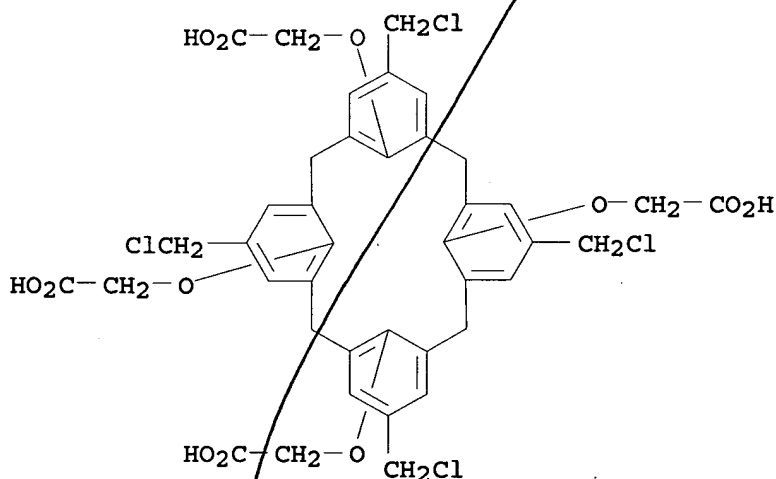
ED Entered STN: 27 Jul 2001

AB A calix[4]arene carboxylate resin was prepared by treatment of polyallylamine matrixes with chloromethylcalix[4]arene carboxylate. Investigate the resin's adsorption behavior was examined in respect of metal ion adsorption on the resin was studied. The selectivity sequence among the base metal ions on the resin is as follows: Pb >> Cu >> Zn .apprx. Ni .apprx. Co. The origin of the selectivity sequence is attributed not to amino groups of the polymer matrixes but to the functional groups of calix[4]arene carboxylate introduced. Although maximum loading capacity for lead ion on the resin was not very high, it shows high lead selectivity and the separation of trace amount of lead from large excess of zinc was completely achieved.

IT 194237-31-5DP, reaction product with polyallylamine matrix (transition metal ion adsorption on polyallylamine matrixes treated with chloromethylcalix[4]arene carboxylate)

RN 194237-31-5 HCAPLUS

CN Acetic acid, 2,2',2'',2'''-[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis-(9CI) (CA INDEX NAME)



CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 68

IT 30551-89-4DP, Polyallylamine, reaction product with chloromethylcalix[4]arene carboxylate 194237-31-5DP, reaction product with polyallylamine matrix (transition metal ion adsorption on polyallylamine matrixes treated with chloromethylcalix[4]arene carboxylate)

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 27 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:107268 HCAPLUS

DOCUMENT NUMBER: 134:296186

TITLE: Synthesis and characterization of sulfonated and poly(ethylene glycol)-calix[4]arene tertiary phosphines

AUTHOR(S): Shen, Jinyu; Roundhill, D. Max

CORPORATE SOURCE: Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, 79409-1061, USA

SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (2000), 165, 33-42

CODEN: PSSLEC; ISSN: 1042-6507

PUBLISHER: Gordon & Breach Science Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 13 Feb 2001

AB Sulfonation of triphenylphosphine with a 30% oleum solution gave phenyl-di-(3-sulfonatophenyl)phosphine. The structure was confirmed by a combination of ¹H and ¹³C NMR spectroscopy. A pair of calix[4]arenes with a tertiary phosphine group on one rim and a methoxy ethylene glycol group on the other were prepared and characterized. One had the phosphine moiety on the narrow rim, and the other had the phosphine on the wide rim. Structural characterization was again by a combination of ¹H and ¹³C NMR spectroscopy.

IT 334678-84-1P

(preparation and phosphination of)

RN 334678-84-1 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), $\alpha, \alpha', \alpha'', \alpha'''$ -[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(ω -methoxy- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

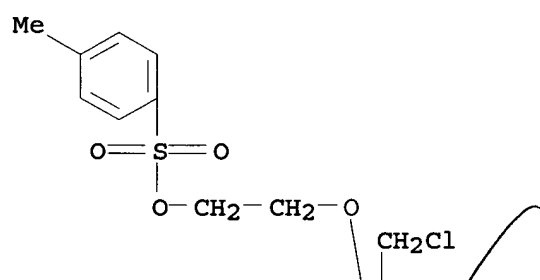
IT 334678-81-8P

(preparation and reaction with polyethylene glycol)

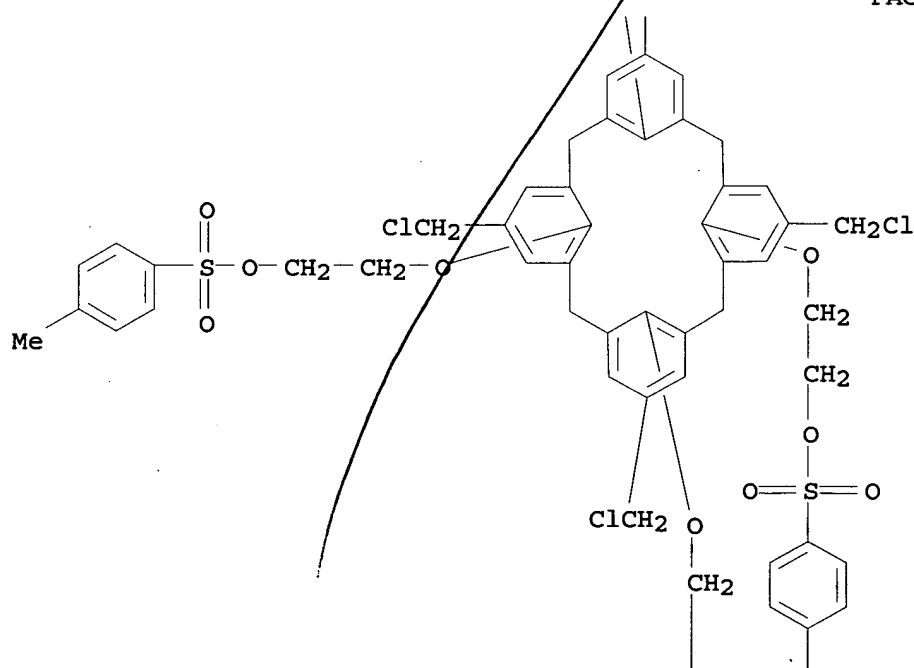
RN 334678-81-8 HCAPLUS

CN Ethanol, 2,2',2'',2'''-[[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis-, tetrakis(4-methylbenzenesulfonate) (9CI) (CA INDEX NAME)

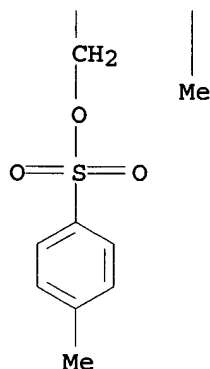
PAGE 1-A



PAGE 2-A



PAGE 3-A



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 29

IT 334678-82-9P 334678-84-1P

(preparation and phosphination of)

IT 334678-81-8P

(preparation and reaction with polyethylene glycol)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 28 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:4116 HCAPLUS

DOCUMENT NUMBER: 132:144332

TITLE: Nanometer electron beam lithography

AUTHOR(S): Ochiai, Yukinori; Manako, Shoko; Fujita, Jun-Ichi;
Nomura, EiichiCORPORATE SOURCE: Fundamental Research Laboratories, NEC corp.,
JapanSOURCE: NEC Research & Development (1999), 40(4), 388-392
CODEN: NECRAU; ISSN: 0547-051X

PUBLISHER: NEC Creative, Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 04 Jan 2000

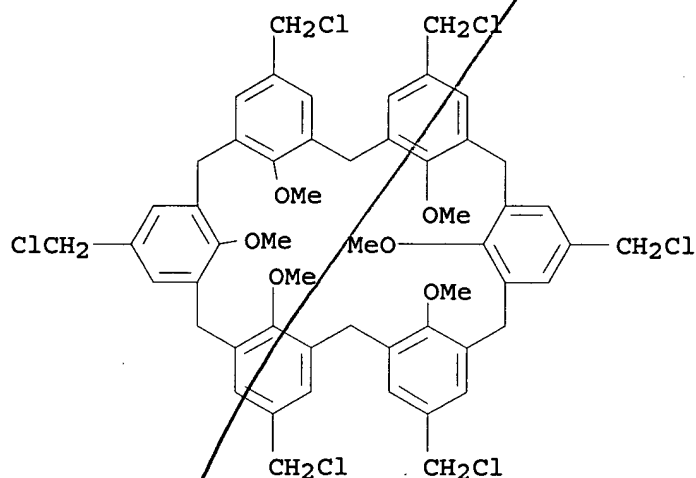
AB High-resolution electron beam (EB) lithog. is demonstrated using a
high-resolution resist, calixarene and polystyrene resist. The authors
fabricated fine dots, and line-and-space patterns with a feature size
of about 10 nm. The smallest-ever line pattern with a width of 7 nm
has been successfully delineated by using poly(α -methylstyrene)
resist with a mol. weight of 650. The authors found that the resolution of
resist is determined by the mol. weight, i.e., the mol. size of resist resin.

IT 124006-38-8

(nanometer electron-beam lithog. using high-resolution calixarene and
polystyrene resist)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 IT 9003-53-6, Polystyrene 25014-31-7, Poly(α -methylstyrene)
 124006-38-8 141137-71-5
 (nanometer electron-beam lithog. using high-resolution calixarene and polystyrene resist)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 29 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:351093 HCAPLUS

DOCUMENT NUMBER: 131:136694

TITLE: High-resolution organic resists for charged-particle lithography

AUTHOR(S): Ochiai, Yukinori; Manako, Shoko; Fujita, Jun-ichi; Nomura, Eiichi

CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan

SOURCE: Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures (1999), 17(3), 933-938

CODEN: JVTBD9; ISSN: 0734-211X

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 08 Jun 1999

AB Exposure of resists with electron or ion beams is a common nanolithog. technol. which is used to fabricate electronic devices and microstructures. The resolution mainly depends on the beam size and the resolution of the resists. We have developed two new high-resolution organic resists, which are calixarene derivs. 50 KeV electron beams and 260 keV Be²⁺ ion beams were used to expose the resists, and 10 nm resolution was achieved with the Gaussian electron beam. The electron beam sensitivities of the two resists were 7 and 0.7 mC/cm², resp. By using them, we produced 10-nm-order resolution patterns, which we exposed with a Gaussian electron beam. We also achieved 10-nm-level resolution by using a low-mol.-weight (Mw = 1100) polystyrene resist, almost the same Mw as that of the calixarene. The resolution of the polystyrene resist improved as its mol. weight was lowered. Therefore, the resist

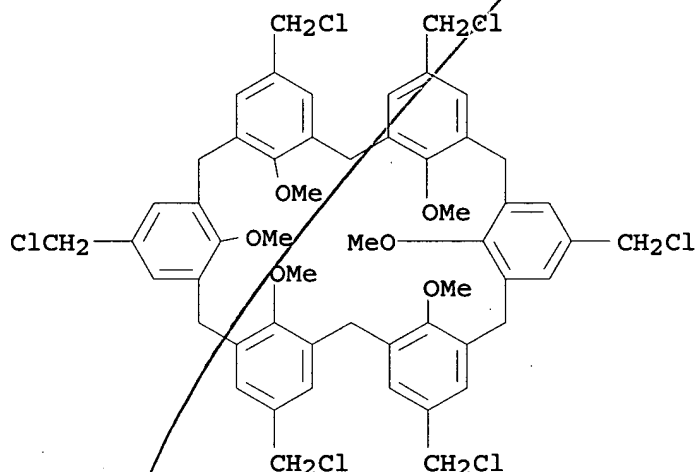
resolution depends on the mol. weight or mol. size.

IT 124006-38-8

(high-resolution charged-particle resists from)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 9003-53-6, Polystyrene 124006-38-8 141137-71-5
(high-resolution charged-particle resists from)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 30 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:182422 HCAPLUS

DOCUMENT NUMBER: 130:255207

TITLE: Separation of lead ion from aqueous solutions and
manufacture of the separating agents

INVENTOR(S): Inoue, Katsutoshi; Oto, Keisuke

PATENT ASSIGNEE(S): Tanaka Noble Metal Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11070383	A	19990316	JP 1997-233682	19970829
PRIORITY APPLN. INFO.:			JP 1997-233682	19970829

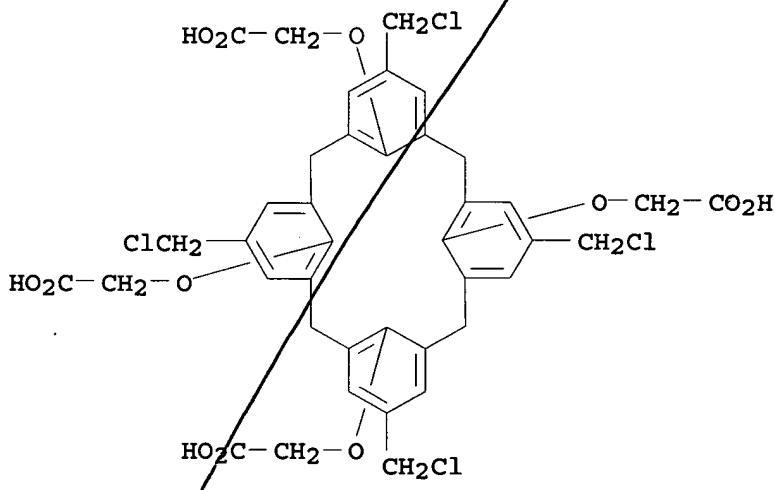
OTHER SOURCE(S): MARPAT 130:255207

ED Entered STN: 19 Mar 1999

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

- AB Pb²⁺ is separated by solvent extraction with calixarene compds. I (R = C₄-16 alkyl). Also claimed is separation of Pb²⁺ by adsorption with calixarene compds. fixed on polyallylamine (II) as adsorbents. The title agents are manufactured by heat stirring I or II with paraformaldehyde, HCl, Ac₂O, H₃PO₄, and dioxane, heat refluxing with water, iso-Pr alc., polyallylamine acetate, NaNO₂, and CaCO₃, and then precipitating with aqueous HCl.
- IT The agents are useful for separation of Pb ion from aqueous solns.
- IT 194237-31-5DP, reaction products with polyallylamine (separation of Pb from aqueous solution by calixarene carboxylate-containing solvent extraction or calixarene carboxylate-fix on polyallylamine adsorption and manufacture of the agent)
- RN 194237-31-5 HCAPLUS
- CN Acetic acid, 2,2',2'',2'''-[[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis-(9CI) (CA INDEX NAME)



- IC ICM C02F001-28
- ICS B01D011-04; B01J020-26; C02F001-26; C02F001-62; C09K003-00
- CC 54-2 (Extractive Metallurgy)
- IT 30551-89-4DP, Allylamine homopolymer, reaction products with chloromethylcalixarene 194237-31-5DP, reaction products with polyallylamine (separation of Pb from aqueous solution by calixarene carboxylate-containing solvent extraction or calixarene carboxylate-fix on polyallylamine adsorption and manufacture of the agent)

L24 ANSWER 31 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:592927 HCAPLUS

DOCUMENT NUMBER: 129:237591

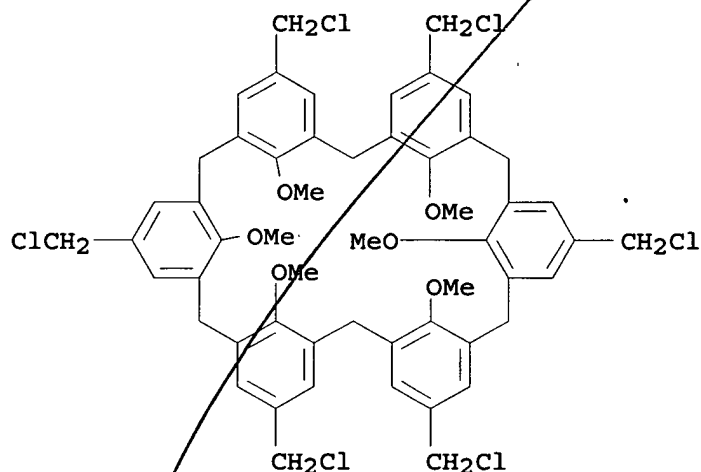
TITLE: Calixarene resists for nano-lithography

AUTHOR(S): Ohnishi, Yoshitake; Wamme, Naoko; Fujita, Jun-Ichi

CORPORATE SOURCE: Fundamental Research Laboratories, NEC

Corporation, Tsukuba, 305, Japan

SOURCE: ACS Symposium Series (1998), 706(Micro- and Nanopatterning Polymers), 249-261
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 18 Sep 1998
AB Calixarenes were developed as neg. electron resists for nano-lithog. These cluster-like, or roughly ball-shaped mols. form very flat and hard films by spin-coating. The high resolution of these resists down to several nm is because these mols. are quite small and free as is in ordinary chain polymers. As etching resistance of calixarenes is sufficient in plasma-etch processes, nano-fabrication of metal or semiconductors is easily carried out by conventional resist processes.
IT 124006-38-8
(calixarene resists for nanolithog.)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 124006-38-8 141137-71-5
(calixarene resists for nanolithog.)
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 32 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:215364 HCAPLUS
DOCUMENT NUMBER: 128:288230
TITLE: Resolution of calixarene resist under low energy electron irradiation
AUTHOR(S): Fujita, J.; Ohnishi, Y.; Manako, S.; Ochiai, Y.; Nomura, E.; Matsui, S.
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan
SOURCE: Microelectronic Engineering (1998), 41/42, 323-326

PUBLISHER: CODEN: MIENEF; ISSN: 0167-9317
 Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

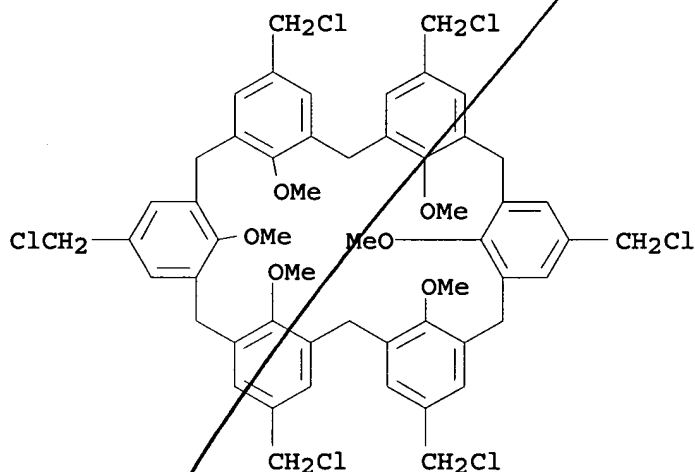
ED Entered STN: 17 Apr 1998

AB The resolution and sensitivity of calixarene resists in relation to incident electron energy were studied. While the sensitivity of the resists was varied in compliance with Bethe theory for the changes of the electron energy, resolution of the resists in terms of the min. dot size, shows almost the same value of about 10 nm for each electron energy. A Monte Carlo simulation suggests the electron dose at the edge of the dot pattern was only one hundredth of that at the center of the electron beam. This means the major factor in limiting the resolution in calixarene resists was not the electron beam profile, but other factors such as a limit due to development processes.

IT 124006-38-8, 5,11,17,23,19,35-Hexachloromethyl-37,38,39,40,41,42-hexamethoxycalix-[6]arene
 (resolution of calixarene resist under low energy electron irradiation)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 124006-38-8, 5,11,17,23,19,35-Hexachloromethyl-37,38,39,40,41,42-hexamethoxycalix-[6]arene 141137-71-5,
 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix-[6]arene
 (resolution of calixarene resist under low energy electron irradiation)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

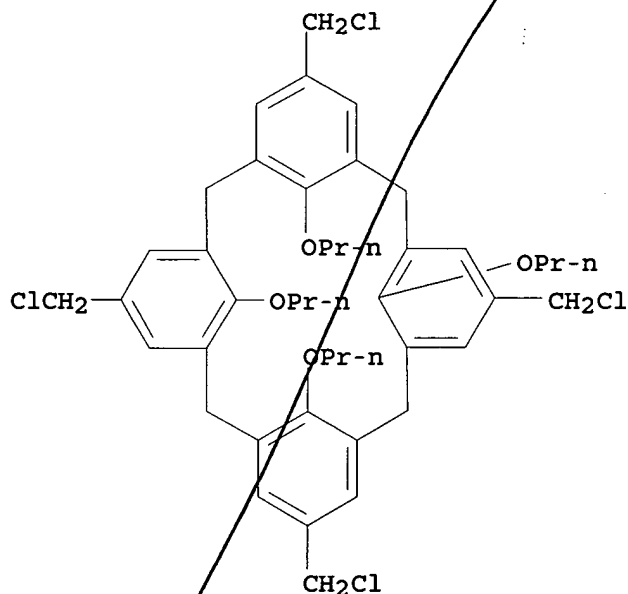
L24 ANSWER 33 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:105652 HCAPLUS

DOCUMENT NUMBER: 128:192633

TITLE: Synthesis of multiply-connected 1,3-alternate-calix[4]arenes. A novel approach to

synthetic "nano-tubes"
 AUTHOR(S): Ikeda, Atsushi; Kawaguchi, Masaru; Shinkai, Seiji
 CORPORATE SOURCE: Department of Chemical Science & Technology,
 Faculty of Engineering, Kyushu University,
 Fukuoka, 812, Japan
 SOURCE: Anales de Quimica International Edition (1997),
 93(6), 408-414
 CODEN: AQIEFZ
 PUBLISHER: Springer-Verlag Iberica
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 21 Feb 1998
 AB Certain metal cations can oscillate between two metal-binding sites in
 a 1,3-alternate-calix[4]arene through its π -basic cavity. Hence,
 it is expected that one-dimensional multiple connection of
 1,3-alternate-calix[4]arenes provides novel synthetic "nano-tubes" for
 metal cation tunneling. A synthetic approach to five
 multiply-connected 1,3-alternate-calix[4]arenes is reported.
 IT 153651-86-6
 (synthesis of multiply-connected calix[4]arene nano-tubes)
 RN 153651-86-6 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
 stereoisomer (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
 IT 64820-21-9 148528-21-6 153651-86-6 162301-48-6
 176098-88-7 177412-46-3
 (synthesis of multiply-connected calix[4]arene nano-tubes)
 REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L24 ANSWER 34 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1998:66945 HCAPLUS

DOCUMENT NUMBER: 128:147408
 TITLE: Calixarene electron beam resist for nano-lithography
 AUTHOR(S): Fujita, Jun-ichi; Ohnishi, Yoshitake; Manako, Shoko; Ochiai, Yukinori; Nomura, Eiichi; Sakamoto, Toshitsugu; Matsui, Shiniji
 CORPORATE SOURCE: Fundamental Res. Lab., NEC Corp., Tsukuba, 305, Japan
 SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (1997), 36(12B), 7769-7772
 CODEN: JAPNDE; ISSN: 0021-4922
 PUBLISHER: Japanese Journal of Applied Physics
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 05 Feb 1998

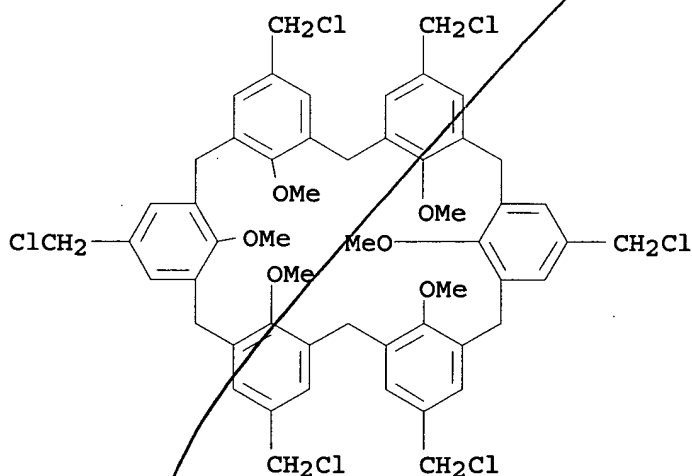
AB New electron beam (EB) resists made of calixarene resists are introduced. Typical sensitivities of calixarene resists range from 700 $\mu\text{C}/\text{cm}^2$ to 7 mC/cm^2 . High-d. dot arrays with 15 nm diameter constructed using calixarene resist were easily delineated using a point EB lithog. system. Our results suggest that the resolution limit of calixarene resists is dominated by a development process such as adhesion to a substrate rather than by the EB profile. Calixarene resists are resistant to etching by halide plasma. We also demonstrated nanoscale devices processed by using calixarene resists. Calixarene resists are promising materials for nanofabrication.

IT 124006-38-8

(electron beam resist for nano-lithog.)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
 37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

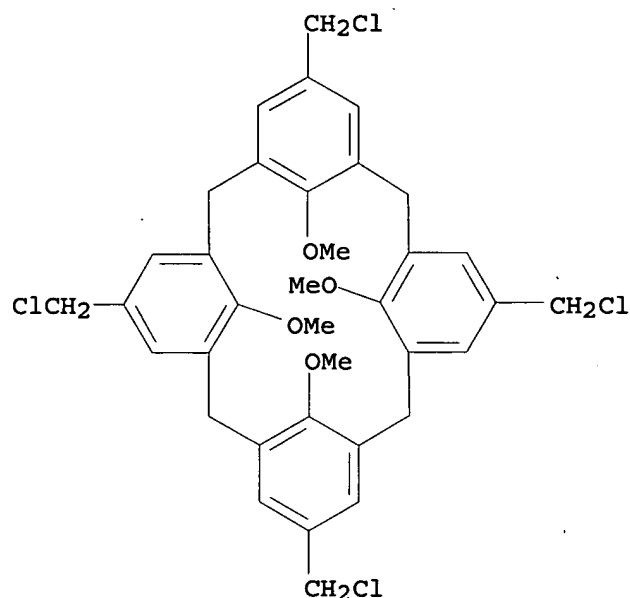
IT 124006-38-8 141137-71-5

(electron beam resist for nano-lithog.)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE

RE FORMAT

L24 ANSWER 35 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:52001 HCAPLUS
DOCUMENT NUMBER: 128:80448
TITLE: (Methylthio)methyl and (N,N-Dimethylcarbamoyl)methyl Upper-Rim-Substituted Calix[4]arenes as Potential Extractants for Ag(I), Hg(II), Ni(II), Pd(II), Pt(II), and Au(III)
AUTHOR(S): Yordanov, Alexander T.; Falana, Olusegun M.; Koch, H. Fred; Roundhill, D. Max
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, 79409-1061, USA
SOURCE: Inorganic Chemistry (1997), 36(27), 6468-6471
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Jan 1998
AB The upper rim substituted calix[4]arenes 5,11,17,23-methanethiomethyl calix[4]arene, 5,11,17,23-methanethiomethyl-25,26,27,28-methoxy calix[4]arene, 5,11,17,23 N,N-dimethyldithiocarbamoylmethyl calix[4]arene and 5,11,17,23-N,N-dimethyldithiocarbamoylmethyl-25,26,27,28-methoxy calix[4]arene have been synthesized. The compds., along with 25,26,27,28-methoxycalix[4]arene, have been used as extractants for Ag(I), Hg(II), Ni(II), Pd(II), Pt(II) and Au(III) from aqueous solution into chloroform. The compds. appended with sulfur groups extract Au(III) and Pd(II), but do not extract Ni(II) and Pt(II). Both 5,11,17,23-methanethiomethyl-25,26,27,28-methoxy calix[4]arene and 5,11,17,23-N,N-dimethyldithiocarbamoylmethyl-25,26,27,28-methoxy calix[4]arene extract Hg(II).
IT 200512-83-0
(in preparation of (methylthio)methyl and (dimethylcarbamoyl)methyl upper-rim-substituted calix[4]arenes)
RN 200512-83-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy-, stereoisomer (CA INDEX NAME)



CC 68-2 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
 Section cross-reference(s): 25
 IT 124-41-4, Sodium methoxide 128-04-1, Sodium N,N-
 dimethyldithiocarbamate 140146-43-6 200512-83-0
 (in preparation of (methylthio)methyl and (dimethylcarbamoyl)methyl
 upper-rim-substituted calix[4]arenes)
 REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L24 ANSWER 36 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1997:610019 HCAPLUS
 DOCUMENT NUMBER: 127:285942
 TITLE: Super-fine pattern formation and super-fine
 etching method using resist containing calixarene
 INVENTOR(S): Onishi, Yoshitake; Fujita, Junichi; Aldoeni,
 Arturo; Casnati, Alessandro; Pochini, Andrea;
 Ungaro, Rocco
 PATENT ASSIGNEE(S): NEC Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09236919	A	19970909	JP 1996-157287	19960618
JP 2792508	B2	19980903		
US 5702620	A	19971230	US 1996-693672	19960813
PRIORITY APPLN. INFO.:			IT 1996-MI382	A 19960228

ED Entered STN: 24 Sep 1997
 AB The title patterning method comprises the steps of forming a resist
 film made of 5,11,17,23,29,35-hexachloromethyl-37,38,39,40,41,42-

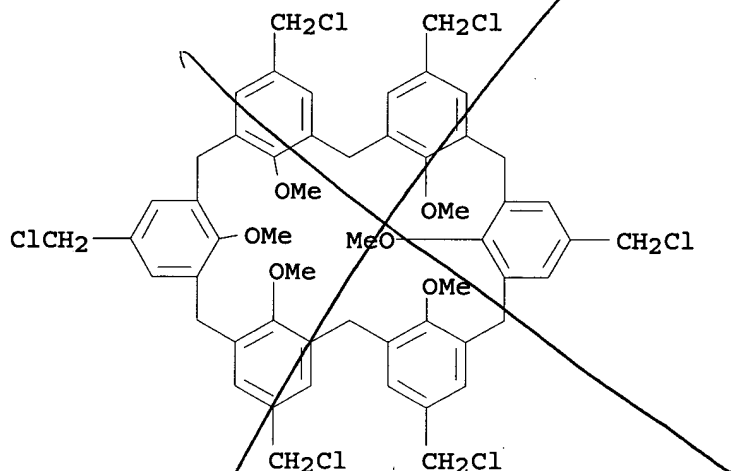
hexamethoxycalix[6]arene (I) which is soluble in solvents and sensitive toward high energy rays, exposing the film selectively with the rays, and removing the unexposed area with the solvents to develop the exposed area. The title etching method comprises forming a pattern on a substrate by the above process and dry-etching the substrate along with the pattern. Super-fine resist patterns of the order of nano-meters are obtained. Thus, a solution of I in dichlorobenzene was coated on a Si wafer, pre-baked, patternwise exposed with an electron beam, and developed with xylene to form a pattern.

IT 124006-38-8P

(super-fine pattern formation using resist containing calixarene)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



IC ICM G03F007-038

ICS C09D165-00; C23F001-00; H01L021-027; H01L021-302

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 124006-38-8P

(super-fine pattern formation using resist containing calixarene)

L24 ANSWER 37 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:582363 HCAPLUS

DOCUMENT NUMBER: 127:270391

TITLE: Calixarene resists for nano-lithography

AUTHOR(S): Ohnishi, Yoshitake; Wamme, Naoko; Fujita, Jun-Ichi

CORPORATE SOURCE: Setagaya, 155, Japan

SOURCE: Polymeric Materials Science and Engineering (1997), 77, 453-454

CODEN: PMSE DG; ISSN: 0743-0515

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 Sep 1997

AB Calixarenes are the cyclic oligomers produced by condensation of phenols and formaldehyde. In other words, they are cyclic phenol resins, but their phys. and chemical properties are much different from

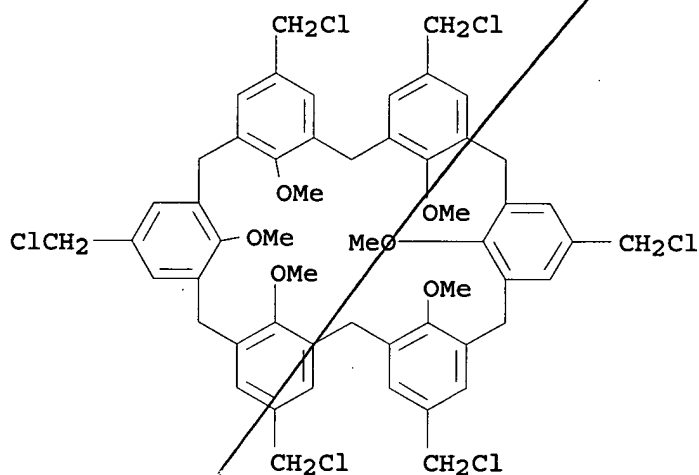
those of linear phenol resins. Calixarenes have generally poor solubilities either to water or organic solvents; many of them are crystalline. Their m.p.s. are generally high, while ordinary phenol resins, novolaks, soften below 150°C. We previously developed and reported 5,11,17,23,29,35-hexamethyl-37,38,39,40,41,42-hexaacetoxycalix[6]arene (MC6AOAc). This compound is soluble to organic solvents and has high heat resistivity up to 320°C. This mol. is, roughly speaking, a round mol. having a diameter around 1 nm. Although there is no entanglement as is in linear polymers, we verified making calixarene films in semiconductor devices. As an electron resist, MC6AOAc shows ultra high resolution and enables us to fabricate nanostructures with conventional resist processes.

IT 124006-38-8

(nano-patterning and nano-fabrications using calixarenes as electron-beam resists)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

IT 124006-38-8 141137-71-5, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix[6]arene
(nano-patterning and nano-fabrications using calixarenes as electron-beam resists)

L24 ANSWER 38 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:471387 HCAPLUS

DOCUMENT NUMBER: 127:227284

TITLE: High resolution EB lithography on organic resists: molecular size effect

AUTHOR(S): Ochiai, Yukinori; Manako, Shoko; Fujita, Jun-Ichi; Nomura, Eiichi

CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan

SOURCE: Journal of Photopolymer Science and Technology (1997), 10(4), 641-646

CODEN: JSTEEW; ISSN: 0914-9244
 PUBLISHER: Technical Association of Photopolymers, Japan
 DOCUMENT TYPE: Journal
 LANGUAGE: English

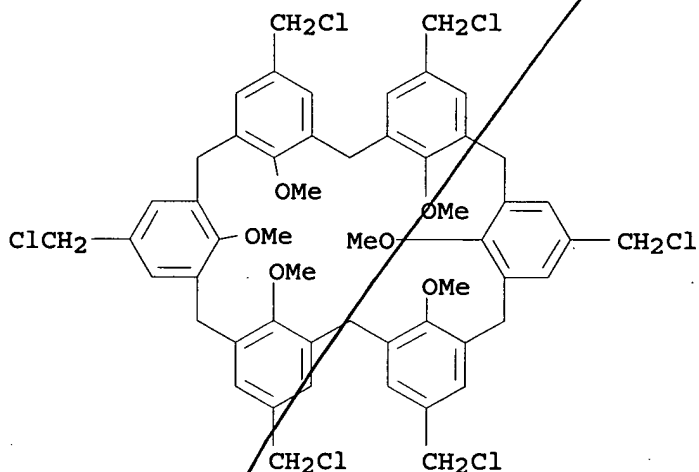
ED Entered STN: 26 Jul 1997

AB The resolution of organic resists has been investigated as a function of base resin structure and mol. weight Calixarene, which has a ring structure, and polystyrene, which has a chain structure, were used for the investigation. The authors show that a high-resolution lithog. can be achieved using an organic resist with a low mol. weight, i.e., a smaller mol. size. A 10 nm level neg. resist pattern is demonstrated.

IT 124006-38-8
 (resolution of organic electron-beam resists as function of base resin structure and mol. weight)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 9003-53-6, Polystyrene 124006-38-8 141137-71-5
 (resolution of organic electron-beam resists as function of base resin structure and mol. weight)

L24 ANSWER 39 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:461820 HCAPLUS

DOCUMENT NUMBER: 127:199295

TITLE: Adsorptive separation of lead and zinc ions by novel type of calix[4]arene carboxylate resin immobilized with polyallylamine

AUTHOR(S): Ohto, Keisuke; Tanaka, Yuki; Inoue, Katsutoshi
 CORPORATE SOURCE: Dep. Appl. Chem., Fac. Sci. Eng., Saga Univ., Honjo, 840, Japan

SOURCE: Chemistry Letters (1997), (7), 647-648

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

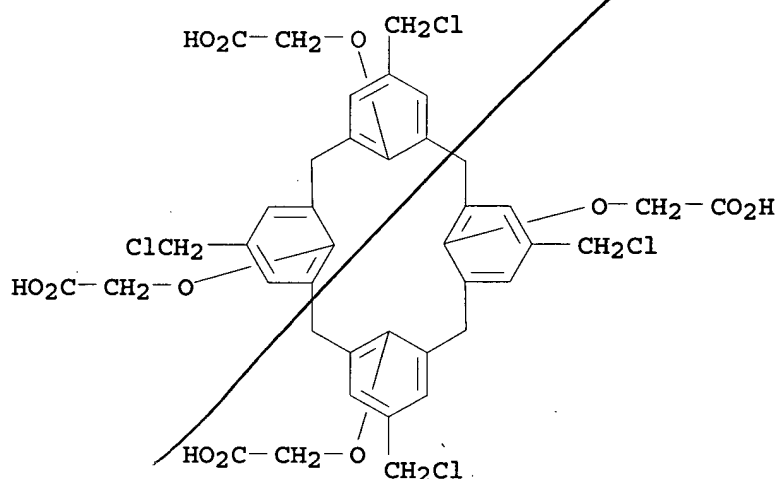
ED Entered STN: 24 Jul 1997

AB Novel type of calix[4]arene carboxylate resin immobilized with polyallylamine was prepared to study the absorption behavior for lead and zinc ions. The resin possesses significantly higher separation efficiency for lead away from zinc. In the separation by column chromatog., it was confirmed to highly selectively adsorb trace amount of lead ion over large excess amount of zinc ion.

IT 194237-31-5DP, reaction product with polyallylamine
(adsorptive separation of lead and zinc ions using of calix[4]arene carboxylate resin immobilized with polyallylamine)

RN 194237-31-5 HCAPLUS

CN Acetic acid, 2,2',2'',2'''-[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis-(9CI) (CA INDEX NAME)



CC 79-4 (Inorganic Analytical Chemistry)
Section cross-reference(s): 37, 66

IT 41232-35-3DP, reaction product with calix[4]arene carboxylate derivative
194237-31-5DP, reaction product with polyallylamine
(adsorptive separation of lead and zinc ions using of calix[4]arene carboxylate resin immobilized with polyallylamine)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 40 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:432806 HCAPLUS

DOCUMENT NUMBER: 127:148989

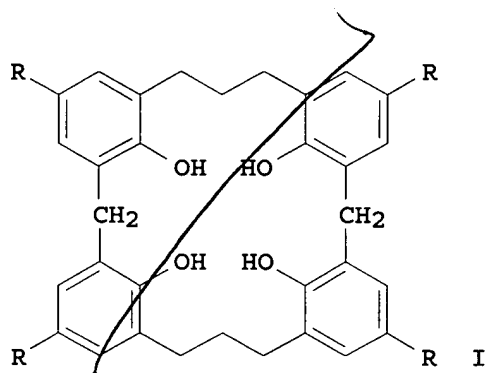
TITLE: Synthesis and conformational studies of tetrahydroxy[3.1.3.1]metacyclophanes and electrophilic aromatic substitution of their tetramethoxy derivatives

AUTHOR(S): Yamato, Takehiko; Saruwatari, Yoshiyuki; Yasumatsu, Masashi

CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Science and Engineering, Saga University, Saga, 840, Japan

SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry

(1997), (11), 1725-1730
 CODEN: JCPRB4; ISSN: 0300-922X
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 127:148989
 ED Entered STN: 11 Jul 1997
 GI



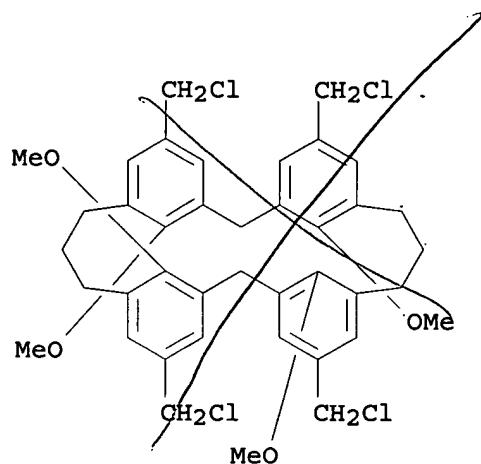
AB Base-catalyzed condensation of 1,3-bis(5-tert-butyl-2-hydroxyphenyl)propane with formaldehyde in xylene was carried out to form the novel propane-bridged calixarene-type macrocyclic compound, tetrahydroxy[3.1.3.1]metacyclophane I (R = Bu-t). The optimum yield (90%) of the latter was obtained with NaOH as the base, the use of other alkali-metal hydroxides giving lower yields. AlCl₃-MeNO₂-catalyzed trans-tert-butylation of I (R = Bu-t) in benzene affords I (R = H) in 80% yield. Intramol. hydrogen bonding was observed in the tetrols I (R = Bu-t, H) and found to be comparable to calix[4]arene. Methylation of I (R = H) with MeI affords the tetra-Me ether. The stability of multi-membered carbon skeletons permits the interconversion of functional groups at the lower and upper rims without special regard to ring-opening side-reactions on the upper rim. The ¹H NMR spectral behavior of these macrocyclic metacyclophanes is also discussed.

IT 193225-03-5P

(preparation of)

RN 193225-03-5 HCAPLUS

CN Pentacyclo[23.3.1.13,7.111,15.117,21]dotriaconta-1(29),3,5,7(32),11,13,15(31),17,19,21(30),25,27-dodecaene, 5,13,19,27-tetrakis(chloromethyl)-29,30,31,32-tetramethoxy- (CA INDEX NAME)



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

IT 193224-99-6P 193225-00-2P 193225-01-3P 193225-02-4P
193225-03-5P 193225-04-6P 193225-05-7P 193281-25-3P

(preparation of)

REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L24 ANSWER 41 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:110116 HCAPLUS

DOCUMENT NUMBER: 126:256967

TITLE: Calixarenes - prospective materials for
nanofabrications

AUTHOR(S): Ohnishi, Y.; Fujita, J.; Ochiai, Y.; Matsui, S.

CORPORATE SOURCE: Fundamental Research Laboratories, NEC
Corporation, 34 Miyukigaoka, Tsukuba, 305, Japan
SOURCE: Microelectronic Engineering (1997), 35(1-4, Micro-
and Nano-Engineering 96), 117-120

CODEN: MIENEF; ISSN: 0167-9317

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

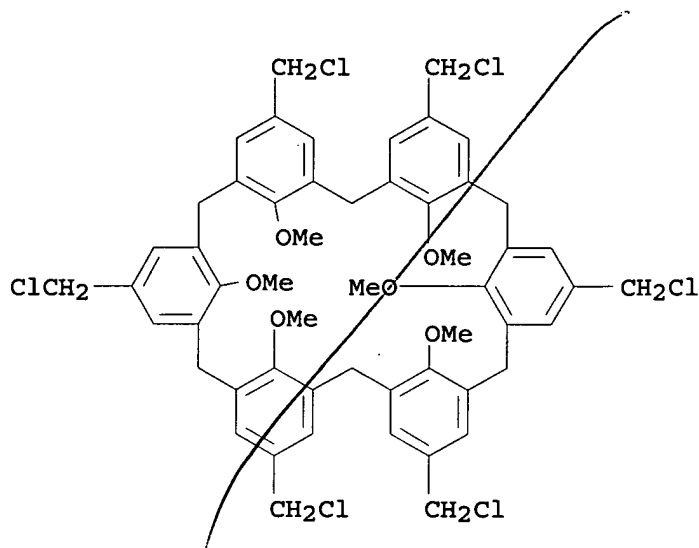
ED Entered STN: 15 Feb 1997

AB A new group of electron resists, calixarene resists, are presented.
These small, cluster-like mols. provide convenient means for making
nanostructures. For example, hexaacetate of methylcalix[6]arene
easily gives a 10 nm scale pattern in E-beam lithog. with conventional
resist processes. Synthesis, identification and characterization of
these compds. are described with examples of nanofabrications.

IT 124006-38-8P
(calixarenes - prospective materials for nanofabrications)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 25

IT 124006-38-8P

(calixarenes - prospective materials for nanofabrications)

L24 ANSWER 42 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:14038 HCAPLUS

DOCUMENT NUMBER: 126:150389

TITLE: Nanometer-scale resolution of calixarene negative resist in electron beam lithography

AUTHOR(S): Fujita, J.; Ohnishi, Y.; Ochiai, Y.; Nomura, E.; Matsui, S.

CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan

SOURCE: Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures (1996), 14(6), 4272-4276

CODEN: JVTBD9; ISSN: 0734-211X

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 10 Jan 1997

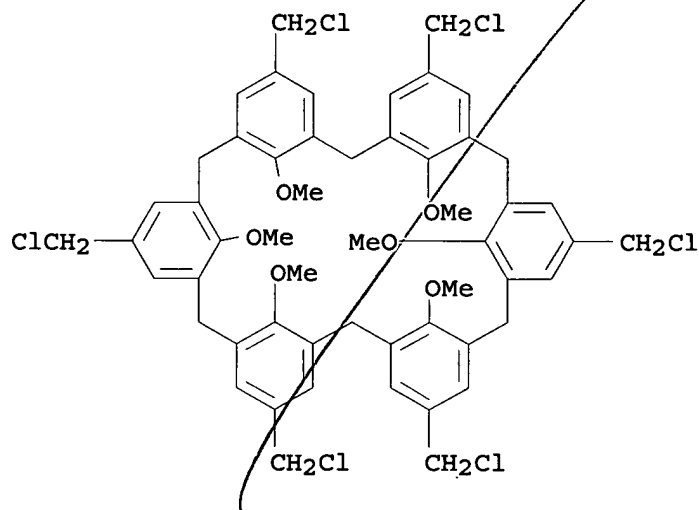
AB New non-polymer materials, calixarene derivs. were tested as high-resolution neg. resists for use in electron beam lithog. Arrays of 12-nm-diameter dots with a 25 nm pitch were fabricated easily. The sensitivity of calixarene in terms of area dose ranged from 700 to 7000 $\mu\text{C}/\text{cm}^2$, and the required dose for dot fabrication was about 105 electrons/dot. The standard area dose for calixarene is almost 20 times higher than that for polymethyl methacrylate (PMMA), but the electron spot dose for dot fabrication by calixarene is almost the same as that for PMMA and other highly sensitive resists such as SAL (chemical amplified neg. resist for electron beam made by Shipley). The electron spot dose for such extremely small dots does not seem to depend on standard area dose, but any resist tends to require the same dose under exposure in a 50 keV electron beam writing system. We propose a qual. exposure model that suggests a tradeoff of dose and dot size. The calixarene seems to be promising material for nanofabrication.

IT 124006-38-8

(non-polymer calixarene derivative as high-resolution neg. resist for electron beam lithog.)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 124006-38-8 141137-71-5, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix[6]arene
(non-polymer calixarene derivative as high-resolution neg. resist for electron beam lithog.)

L24 ANSWER 43 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1996:539389 HCAPLUS

DOCUMENT NUMBER: 125:275836

TITLE: Synthesis and optical resolution of naphthalene-containing inherently chiral calix[4]arenes derived by intramolecular ring closure or stapling of proximal phenyl units
AUTHOR(S): Ikeda, Atsushi; Yoshimura, Makoto; Lhotak, Pavel; Shinkai, Seiji

CORPORATE SOURCE: Dep. Chem. Sci. & Technol., Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1996), (16), 1945-1950

CODEN: JCPRB4; ISSN: 0300-922X

PUBLISHER: Royal Society of Chemistry

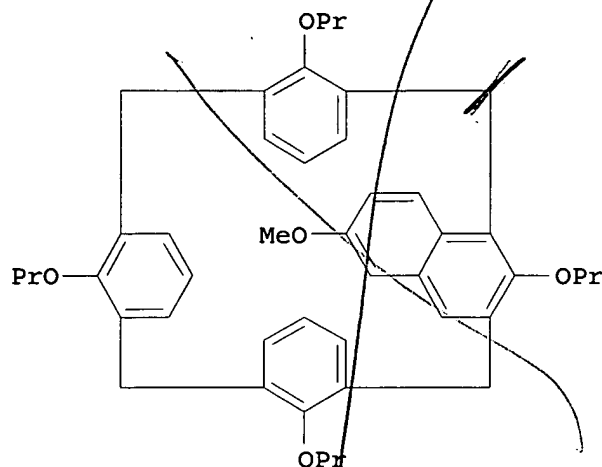
DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 125:275836

ED Entered STN: 10 Sep 1996

GI



I

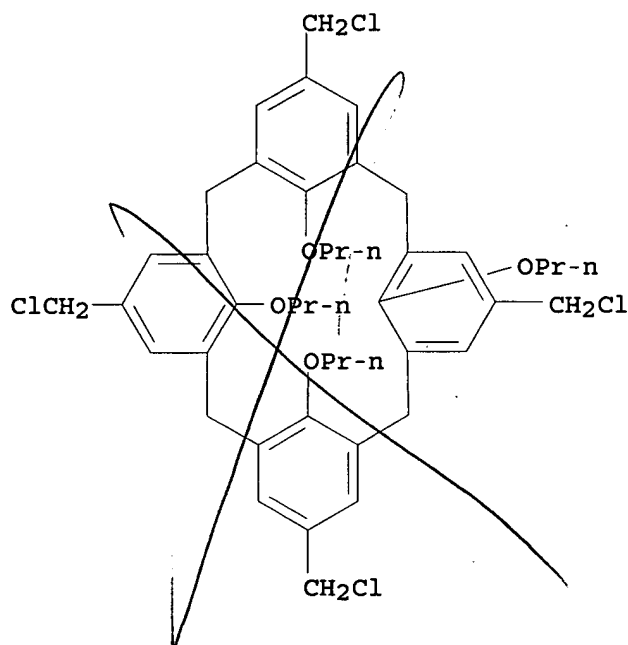
AB New methods for the preparation of inherently chiral calix[4]arenes have been developed. The mol. asym. in these calix[4]arenes is created by an asym. disposition of naphthalene rings on the upper rim. In calix[4]arene I, a monoformylcalix[4]arene was transformed into naphthalene-containing calix[4]arene by ring closure. In a naphthalene-containing calix[4]arene, with the naphthalenes forming a heterocyclic ring, p-chloromethyl groups are intramol. cross-linked with 3-hydroxymethyl-2-naphthol. This 'stapling reaction' results in a syn isomer and an anti isomer, the latter being classified into an inherently chiral calix[4]arene. The racemic anti isomer could be 'perfectly' optically resolved by an HPLC method with a chiral-packed column. The chiral products were thoroughly characterized by various spectroscopic methods. These results indicate that the naphthalene skeleton is very useful for creating mol. asym. in calix[4]arenes.

IT 153651-86-6P

(preparation and optical resolution of naphthalene-containing calixarenes)

RN 153651-86-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
stereoisomer (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
 IT 153651-86-6P 154497-05-9P 176098-95-6P 182288-70-6P
 182288-88-6P

(preparation and optical resolution of naphthalene-containing calixarenes)

L24 ANSWER 44 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1996:296110 HCAPLUS

DOCUMENT NUMBER: 125:86286

ORIGINAL REFERENCE NO.: 125:16261a,16264a

TITLE: A transannularly bridged bis(calix[4]arene)
 forming a multiple ansa compound

AUTHOR(S): Siepen, Astrid; Zett, Andreas; Voegtler, Fritz

CORPORATE SOURCE: Institut Organische Chemie und Biochemie,
 Universitaet Bonn, Bonn, D-53121, Germany

SOURCE: Liebigs Annalen (1996), (5), 757-760

CODEN: LANAEM; ISSN: 0947-3440

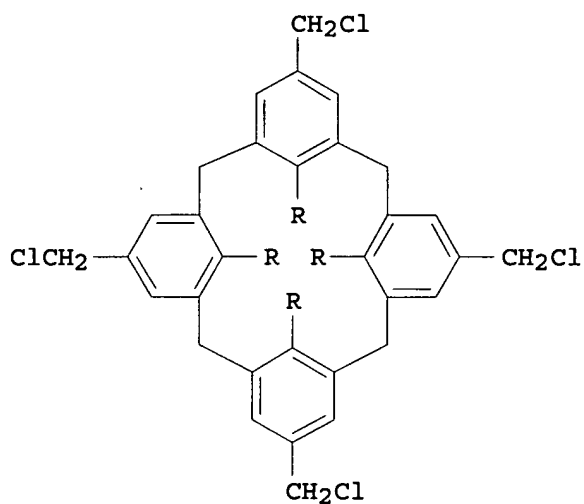
PUBLISHER: VCH

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 18 May 1996

GI



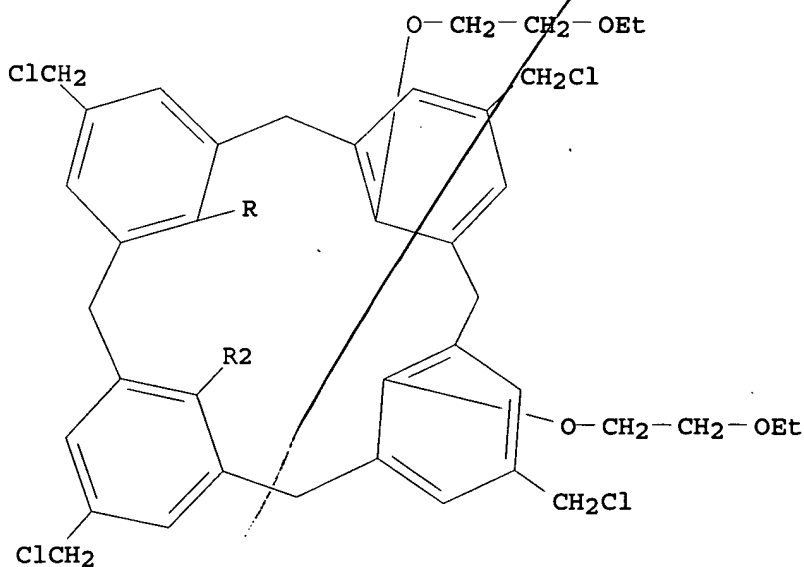
AB The reaction of the chloromethylated calix[4]arene I [R = OCH₂CH₂OEt] fixed in the cone conformation with 4,4'-dihydroxybiphenyl leads to a bis(calix[4]arene) macrocycle threaded by two intramol. bridges, which contains three cavities in one multiple ansa mol.

IT 156714-22-6
(preparation of transannularly bridged bis(calix[4]arene) forming multiple ansa compound)

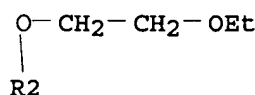
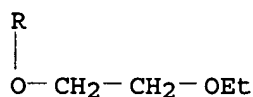
RN 156714-22-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-, stereoisomer (CA INDEX NAME)

PAGE 1-A



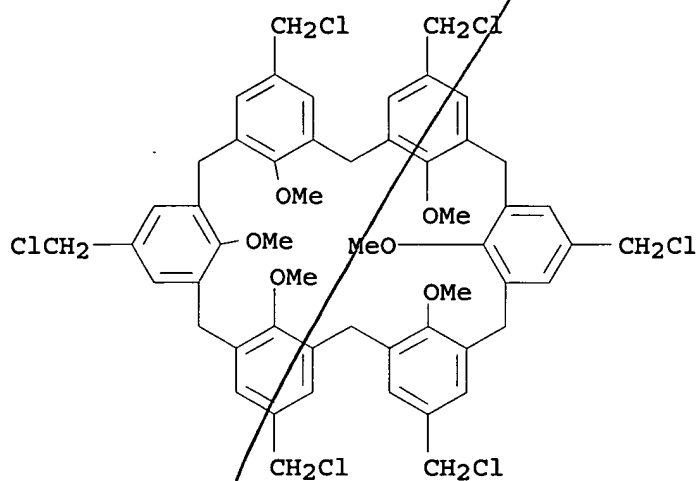
PAGE 2-A



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 IT 92-88-6, 4,4'-Dihydroxybiphenyl 156714-22-6
 (preparation of transannularly bridged bis(calix[4]arene) forming multiple ansa compound)

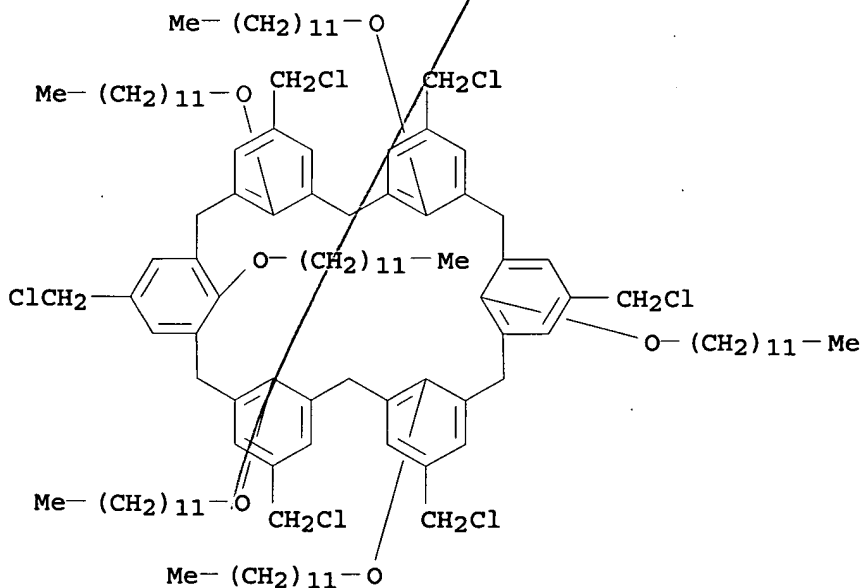
L24 ANSWER 45 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1996:35810 HCAPLUS
 DOCUMENT NUMBER: 124:202218
 ORIGINAL REFERENCE NO.: 124:37385a,37388a
 TITLE: Molecular design of calixarene-based host molecules for inclusion of C60 in solution
 AUTHOR(S): Araki, Koji; Akao, Kiyotaka; Ikeda, Atsushi; Suzuki, Tsuyoshi; Shinkai, Seiji
 CORPORATE SOURCE: Faculty Engineering, Kyushu University, Fukuoka, 812, Japan
 SOURCE: Tetrahedron Letters (1996), 37(1), 73-6
 CODEN: TELEAY; ISSN: 0040-4039
 PUBLISHER: Elsevier
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 18 Jan 1996
 AB Calix[6]arenes bearing N,N-dialkylaniline units or m-phenylenediamine units were synthesized to capture C60 in organic solution: the association consts. (7.9-1.1 + 102 dm³mol⁻¹) were the largest values obtained so far, indicating that calix[6]arene acts as an excellent platform to facilitate the cooperative action of the donor groups.
 IT 124006-38-8P 174532-26-4P
 (preparation of calixarenes and absorption spectra and association consts. of inclusion complexes with fullerene)
 RN 124006-38-8 HCAPLUS
 CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 174532-26-4 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexakis(dodecyloxy)- (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))

IT 106750-73-6P 124006-38-8P 174532-25-3P

174532-26-4P

(preparation of calixarenes and absorption spectra and association consts. of inclusion complexes with fullerene)

L24 ANSWER 46 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:542368 HCAPLUS

DOCUMENT NUMBER: 123:112047

ORIGINAL REFERENCE NO.: 123:20017a,20020a

TITLE: A new macrocavitand from the head to tail
four-point capping of p-tert-butylcalix[8]arene
with a calix[4]arene

AUTHOR(S): Arduini, Arturo; Pochini, Andrea; Secchi, Andrea;
Ungaro, Rocco

CORPORATE SOURCE: Dipartimento Chimica Organica Industriale,
Universita Parma, Parma, 43100, Italy

SOURCE: Journal of the Chemical Society, Chemical
Communications (1995), (8), 879-80
CODEN: JCCCAT; ISSN: 0022-4936

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 123:112047

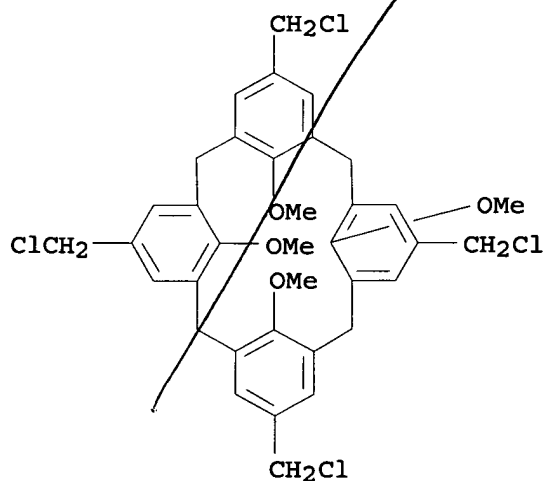
ED Entered STN: 11 May 1995

AB The synthesis of a partially rigid calix[8]arene with a deep cavity,
obtained by capping p-tert-butylcalix[8]arene with
tetramethoxy-p-tetrachloromethylcalix[4]arene in the presence of CsF
is reported.

IT 139934-98-8
(preparation of a macrocavitand from the head to tail four-point capping
of p-tert-butylcalix[8]arene with a calix[4]arene)

RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX
NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))

IT 68971-82-4, p-tert-Butylcalix[8]arene 139934-98-8
(preparation of a macrocavitand from the head to tail four-point capping
of p-tert-butylcalix[8]arene with a calix[4]arene)

L24 ANSWER 47 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:519240 HCAPLUS

DOCUMENT NUMBER: 123:9020

ORIGINAL REFERENCE NO.: 123:1899a,1902a

TITLE: Self-assembly of tetracationic amphiphiles bearing
a calix[4]arene core. Correlation between the core
structure and the aggregation properties

AUTHOR(S): Arimori, Susumu; Nagasaki, Takeshi; Shinkai, Seiji
CORPORATE SOURCE: Dep. of Chemical Science, Kyushu Univ., Fukuoka,
812, Japan
SOURCE: Journal of the Chemical Society, Perkin
Transactions 2: Physical Organic Chemistry (1995),
(4), 679-83
CODEN: JCPKBH; ISSN: 0300-9580
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 02 May 1995

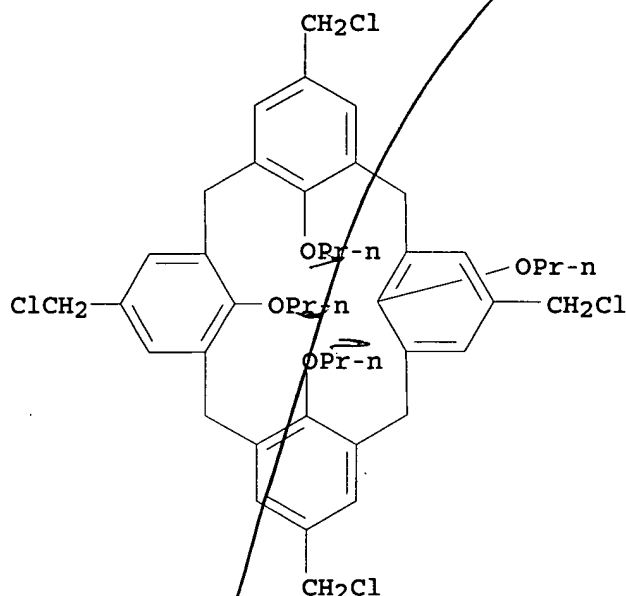
AB Water-soluble, conformationally-immobilized calix[4]arenes (1 and 2n) with cone and 1,3-alternate conformations have been synthesized: at the para-position of each Ph unit, 1 has a Me₃N+CH₂ group and 2n has a Me₃N+[CH₂]_nOCH₂ (n = 4, 6, 11) group. Examns. with surface tension, fluorescence and dynamic light-scattering established that in water, cone-1 aggregates into small micellar particles whereas such mol. aggregates are not detected for 1,3-alternate-1. In 2n, both the cone and 1,3-alternate isomers formed aggregates in water but the cone isomers always gave CAC (critical aggregation concentration) values lower than the 1,3-alternate isomers. These results consistently indicate that the cone 2n isomers with a cone-shaped hydrophobic surface are more cohesive intermolecularly than the 1,3-alternate 2n isomers with a cylindrical hydrophobic surface. From the mol. shape one can expect that the cone isomers favorably form a globular micelle whereas the 1,3-alternate isomers favorably form a two-dimensional lamella. This was evidenced by the fact that 1,3-alternate-2n can form stable vesicular aggregates detectable by an electron microscope whereas cone-2n cannot form such stable aggregates. These results demonstrate that the aggregation properties of calix[4]arene-containing amphiphiles can be controlled by the conformational structure difference in the calix[4]arene core.

IT 153651-86-6 163750-99-0

(effect of conformations of tetracationic amphiphilic
calix[4]arenes on their aggregation properties)

RN 153651-86-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
stereoisomer (CA INDEX NAME)



RN 163750-99-0 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
 stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 22-13 (Physical Organic Chemistry)
 Section cross-reference(s): 46

IT 1862-07-3 13330-96-6 29823-94-7 153651-86-6
 163750-99-0

(effect of conformations of tetracationic amphiphilic
 calix[4]arenes on their aggregation properties)

L24 ANSWER 48 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:218034 HCAPLUS

DOCUMENT NUMBER: 122:314530

ORIGINAL REFERENCE NO.: 122:57201a,57204a

TITLE: Synthesis of a symmetric octathio
 bis(calix[4]arene) cage molecule. [Erratum to
 document cited in CA121:157619]

AUTHOR(S): Blanda, Michael T.; Griswold, Karl E.

CORPORATE SOURCE: Department of Chemistry, Southwest Texas State
 University, San Marcos, TX, 78666, USA

SOURCE: Journal of Organic Chemistry (1994), 59(26), 8315
 CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 30 Nov 1994

AB The errors were not reflected in the abstract or the index entries.

IT 155057-44-6

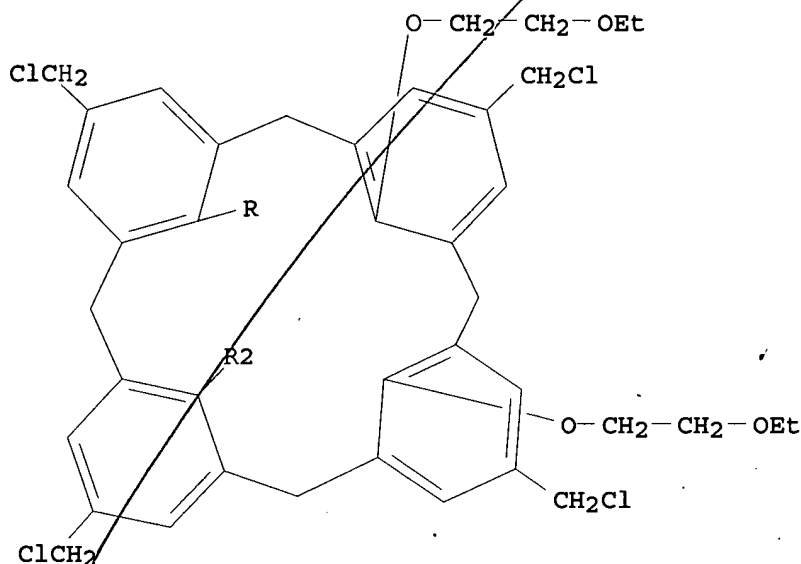
(reactant for octathio bis(calix[4]arene) cage (Erratum))

RN 155057-44-6 HCAPLUS

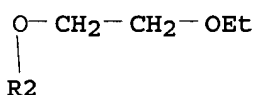
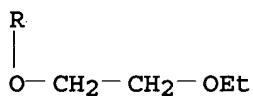
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,

5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-
(CA INDEX NAME)

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CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 25
IT 75-11-6, Methylene diiodide 540-63-6, 1,2-Ethanedithiol
155057-44-6 157362-43-1
(reactant for octathio bis(calix[4]arene) cage (Erratum))

L24 ANSWER 49 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:188763 HCAPLUS

DOCUMENT NUMBER: 122:160622

ORIGINAL REFERENCE NO.: 122:29609a,29612a

TITLE: Multiple connection of 1,3-alternate-calix[4]arenes. An approach to synthetic 'nano-tubes'

AUTHOR(S): Ikeda, Atsushi; Shinkai, Seiji

CORPORATE SOURCE: Dep. Chem. Sci. Technol., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Journal of the Chemical Society, Chemical

Communications (1994), (20), 2375-6
CODEN: JCCCAT; ISSN: 0022-4936
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 122:160622
ED Entered STN: 12 Nov 1994
AB As an approach to synthetic 'nano-tubes' 1,3-alternate-calix[4]arenes which have a π -basic hole for metal tunneling are connected by a stepwise method.
IT 163750-99-0
(synthetic approach to 'nano-tubes' alternate calix[4]arenes)
RN 163750-99-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

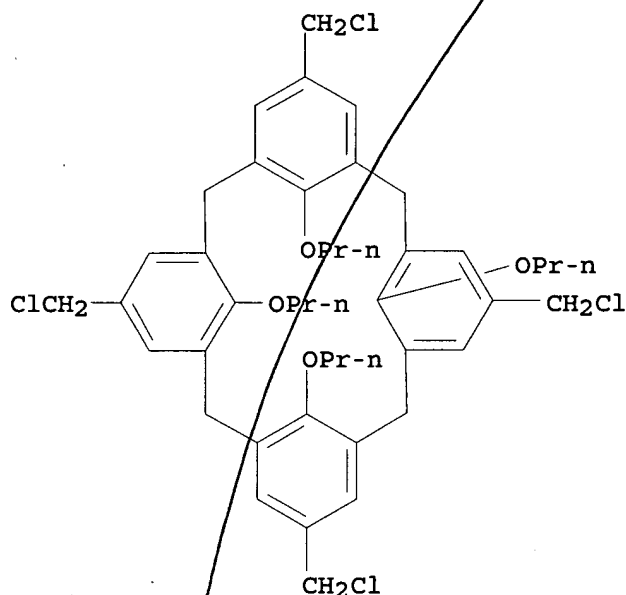
CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 25
IT 120-80-9, Catechol, reactions 163750-99-0
(synthetic approach to 'nano-tubes' alternate calix[4]arenes)

L24 ANSWER 50 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:132949 HCAPLUS
DOCUMENT NUMBER: 122:81547
ORIGINAL REFERENCE NO.: 122:15499a,15502a
TITLE: NMR spectroscopic and x-ray crystallographic studies of calix[4]arene-Ag⁺ complexes. Influence of bound Ag⁺ on C2v-C2v interconversion in cone-calix[4]arenes
AUTHOR(S): Ikeda, Atsushi; Tsuzuki, Hirohisa; Shinkai, Seiji
CORPORATE SOURCE: Dept. of Chemical Science and Technology, Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) (1994), (10), 2073-80
CODEN: JCPKBH; ISSN: 0300-9580
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 08 Nov 1994
AB The Ag⁺ complexes of conformationally immobilized tetra-O-propylcalix[4]arene with a cone or a partial-cone conformation (cone-2Pr or partial-cone-2Pr, resp.) were successfully analyzed by x-ray crystallog. In both complexes Ag⁺ was bound to the upper rim cavity, sandwiched by the two para carbons in the distal Ph units. The findings provide clear evidence for π -base participation. In particular, the basic calix[4]arene skeleton in partial-cone-2Pr-Ag⁺ is almost the same as that in partial-cone-2Pr itself. Partial-cone-2R possesses 2 distal benzene rings ideally preorganized for Ag⁺-binding. ¹H NMR spectroscopic studies for the Ag⁺ complexes in solution indicated that Ag⁺ is bound to the same site as that in the solid state. In conformationally mobile 2Me, which exists in solution in equilibrium between cone and partial-cone, Ag⁺ induced a shift of the equilibrium to partial-cone to form the partial-cone-2Me-Ag⁺ complex. This is ascribed to the ideal preorganization in partial-cone-2R for the Ag⁺-binding. These results are of great significance for an understanding of π -base participation in the metal-binding events and have important implications on the cation- π interaction in

biol. systems.
 IT 153651-86-6
 (methylation of tetrakis(chloromethyl)tetrapropoxycalixarene)
 RN 153651-86-6 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
 stereoisomer (CA INDEX NAME)



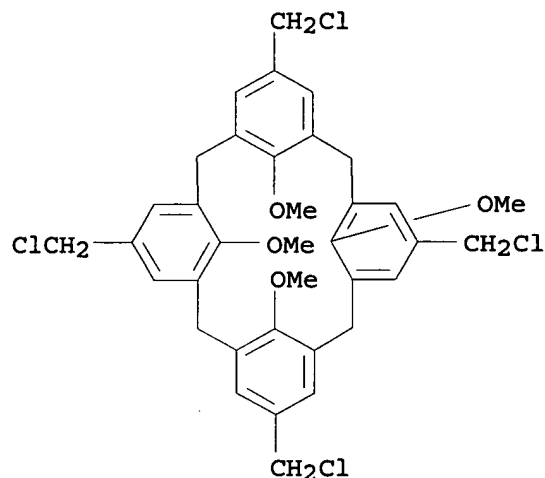
CC 29-9 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 75
 IT 153651-86-6
 (methylation of tetrakis(chloromethyl)tetrapropoxycalixarene)

L24 ANSWER 51 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1995:104386 HCAPLUS
 DOCUMENT NUMBER: 123:143198
 ORIGINAL REFERENCE NO.: 123:25489a,25492a
 TITLE: Liquid-liquid extraction of transition and alkali
 metal cations by new calixarenes
 AUTHOR(S): Hamada, Fumio; Kondo, Yoshihiko; Suzuki,
 Souichiro; Ohnoki, Seiji; Unieja, Pabindra K.;
 Atwood, Jerry L.
 CORPORATE SOURCE: Mining College, Akita University, Tegata, 010,
 Japan
 SOURCE: International Journal of the Society of Materials
 Engineering for Resources (1994), 2(1), 37-46
 CODEN: IMEREB
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 08 Nov 1994
 AB The liquid-liquid extraction of various metal ions by a couple new
 calix[4]arenes, which have aminobenzene carboxylic acid,
 benzothiazole, and benzoxazole, thiomethyl, and pyrazole group on the
 upper rim of calixarene, was studied.
 IT 139934-98-8

(liquid-liquid extraction of transition and alkali metal cations by calixarenes)

RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX
NAME)



CC 22-12 (Physical Organic Chemistry)

Section cross-reference(s): 25, 68, 69

IT 99-05-8, 3-Aminobenzoic acid 118-92-3, 2-Aminobenzoic acid
149-30-4, 2-Mercaptobenzothiazole 150-13-0, 4-Aminobenzoic acid
2382-96-9, 2-Mercaptobenzoxazole 7429-90-5, Aluminum, reactions
7440-02-0, Nickel, reactions 7440-09-7, Potassium, reactions
7440-23-5, Sodium, reactions 7440-43-9, Cadmium, reactions
7440-50-8, Copper, reactions 7440-66-6, Zinc, reactions
139934-98-8 166587-80-0

(liquid-liquid extraction of transition and alkali metal cations by calixarenes)

L24 ANSWER 52 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:630807 HCAPLUS

DOCUMENT NUMBER: 121:230807

ORIGINAL REFERENCE NO.: 121:42091a,42094a

TITLE: preparation of 1,3-alternate-type calixarene derivatives

INVENTOR(S): Shinkai, Seiji

PATENT ASSIGNEE(S): Shingijutsu Kaihatsu Jigyodan, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06116261	A	19940426	JP 1992-289360	19921003
JP 2999889	B2	20000117		
PRIORITY APPLN. INFO.:			JP 1992-289360	19921003

OTHER SOURCE(S): MARPAT 121:230807

ED Entered STN: 12 Nov 1994

GI For diagram(s), see printed CA Issue.

AB The title compds. [I; R = C_{≥3} alkyl, alkoxyethyl], useful in extracting Ag and K ions, are prepared. Propylation of calix[4]arene alc. II (R₁ = H) with PrI and Cs₂CO₃ in acetone under reflux and N gave Pr ether II (R₁ = Pr), which was suspended with paraformaldehyde in dioxane and treated with concentrated HCl and H₃PO₄ with stirring at 80° to give 67% chloromethylcalixarene III. K₂CO₃ was added to a solution of III in acetone and the solution refluxed, to which a solution of catechol in acetone was added, and the mixture was kept at room temperature to give 81% I (R = Pr) (IV). Extraction of MNO₃ (M = K, Ag) in aqueous picric acid by IV showed 21.3% extraction of K⁺ and 61.7% extraction of Ag⁺, vs. 1.1 and 7.6%, resp., with a cone-type calixarene.

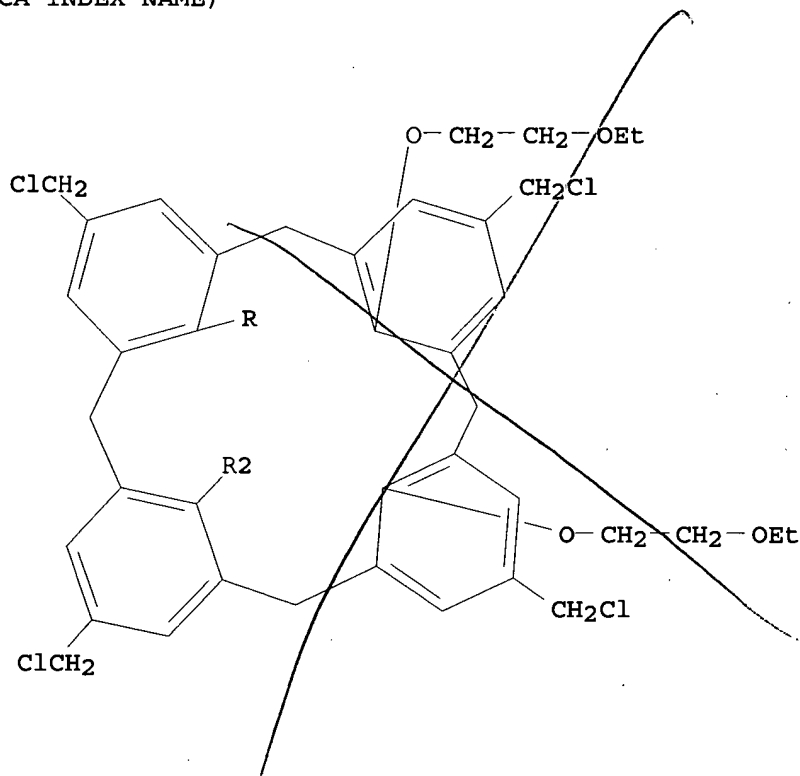
IT 155057-44-6P 163750-99-0P

(preparation and reaction of, with catechol, in preparation of 1,3-alternate calixarene derivs.)

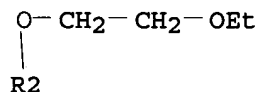
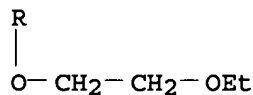
RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-
(CA INDEX NAME)

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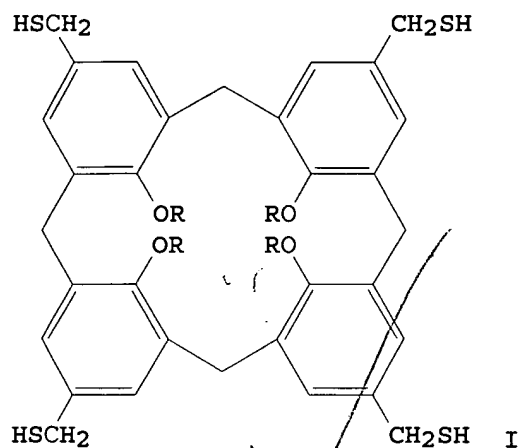


RN 163750-99-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C07D323-00
CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT 155057-44-6P 163750-99-0P
(preparation and reaction of, with catechol, in preparation of 1,3-alternate
calixarene derivs.)

L24 ANSWER 53 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:557619 HCAPLUS
DOCUMENT NUMBER: 121:157619
ORIGINAL REFERENCE NO.: 121:28541a,28544a
TITLE: Synthesis of a symmetric octathio
bis(calix[4]arene) cage molecule
AUTHOR(S): Blanda, Michael T.; Griswold, Karl E.
CORPORATE SOURCE: Department of Chemistry, Southwest Texas State
University, San Marcos, TX, 78666, USA
SOURCE: Journal of Organic Chemistry (1994), 59(15),
4313-15
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 01 Oct 1994
GI



AB Condensation of 4-(mercaptomethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)calix[4]arene I (R = ethoxyethoxy) with methylene diiodide gave the title compound. Complexation behavior of the octathio bis(calix[4]arene) with p-xylene was reported.

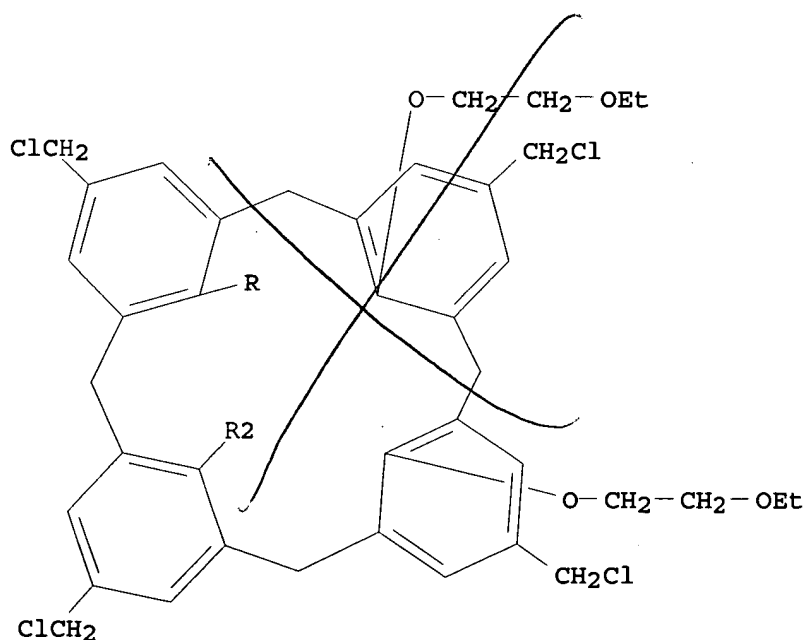
IT ~~155057-44-6~~

(reactant for octathio bis(calix[4]arene) cage)

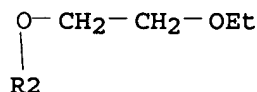
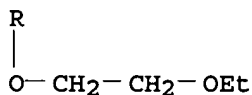
RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-
(CA INDEX NAME)

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CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
 Section cross-reference(s): 25
 IT 75-11-6, Methylene diiodide 540-63-6, 1,2-Ethanedithiol
 155057-44-6 157362-43-1
 (reactant for octathio bis(calix[4]arene) cage)

L24 ANSWER 54 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:508176 HCAPLUS

DOCUMENT NUMBER: 121:108176

ORIGINAL REFERENCE NO.: 121:19511a,19514a

TITLE: New artificial receptors from selectively
 functionalized calix [4] arenes

AUTHOR(S): Arduini, Arturo; Casnati, Alessandro; Fabbi,
 Massimo; Minari, Patrizia; Pochini, Andrea;
 Sicuri, Anna Rita; Ungaro, Rocco

CORPORATE SOURCE: Ist. Chim. Org., Univ. Parma, Parma, I-43100,
 Italy

SOURCE: Supramolecular Chemistry (1993), 1(3-4), 235-46
 CODEN: SCHEER; ISSN: 1061-0278

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 121:108176

ED Entered STN: 03 Sep 1994

AB The development of new synthetic methods for the monoalkylation of
 calix[4]arenes at the lower rim allows the synthesis of a new class of
 trihydroxamate siderophores. Three chelating hydroxamic acid units
 are introduced through a sequence of reactions which blocks the
 macrocycle in the cone conformation. The new ligands obtained form
 neutral 1:1 complexes (FeL) with iron(III), which are stable in
 EtOH/H₂O 9:1 at pH 2-7. Calix[4]arene bis-crown ethers are prepared by
 exploiting the selective 1,2-(proximal) functionalization of
 calix[4]arenes at the lower rim. These ligands are, however, less
 effective in complexing alkali metal cations compared with the
 1,3-calix[4]arene crown-ethers which, in their partial cone structure,
 offer a better shielding for the complexed cations. Rigid upper
 rim-bridged calix[4]arenes potentially useful for the inclusion of
 neutral mols. are prepared by exploiting the selective 1,3-diformylation
 of calix[4]arene at the upper rim. Finally a new chloromethylation
 method for calix[4]arenes blocked in the cone conformation is
 described together with the synthesis of new cavitands.

IT 156714-22-6P

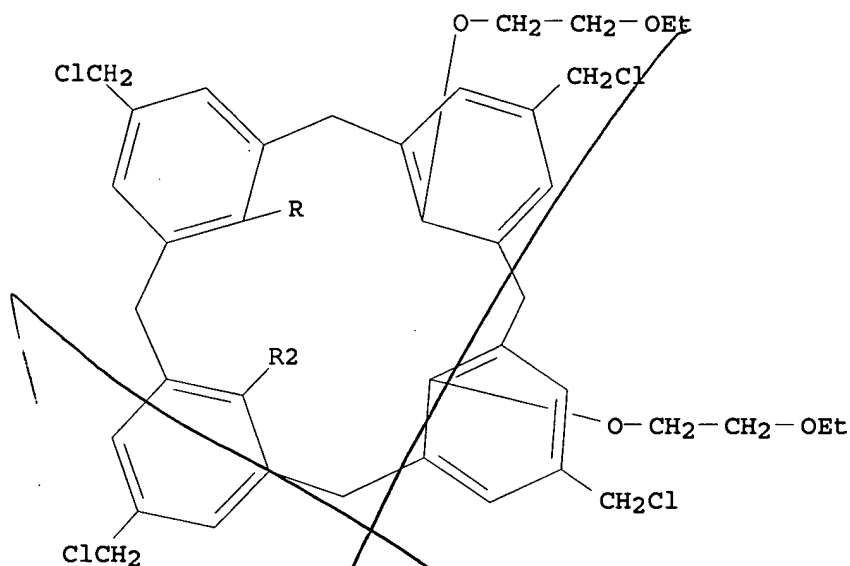
(preparation of)

RN 156714-22-6 HCAPLUS

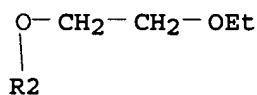
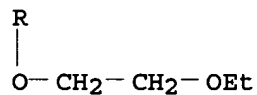
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy) -

, stereoisomer (CA INDEX NAME)

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CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 Section cross-reference(s): 22
 IT 137014-58-5P 137014-59-6P 156625-52-4P 156625-54-6P
 156625-56-8P 156625-57-9P 156714-22-6P
 (preparation of)

L24 ANSWER 55 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:308588 HCAPLUS

DOCUMENT NUMBER: 120:308588

ORIGINAL REFERENCE NO.: 120:54129a,54132a

TITLE: On the Origin of High Ionophoricity of
 1,3-Alternate Calix[4]arenes: π -donor
 Participation in Complexation of Cations and
 Evidence for Metal-Tunneling through the
 Calix[4]arene Cavity

AUTHOR(S): Ikeda, Atsushi; Shinkai, Seiji

CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Journal of the American Chemical Society (1994),

116(7), 3102-10

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE:

Journal

LANGUAGE:

English

ED Entered STN: 11 Jun 1994

AB Nine conformationally-immobilized calix[4]arenes (including two doubly-bridged 1,3-alternate calix[4]arenes) and several reference calix[4]arenes with other conformations were synthesized. Two-phase solvent-extraction of and determination of association consts. by 1H NMR spectroscopy

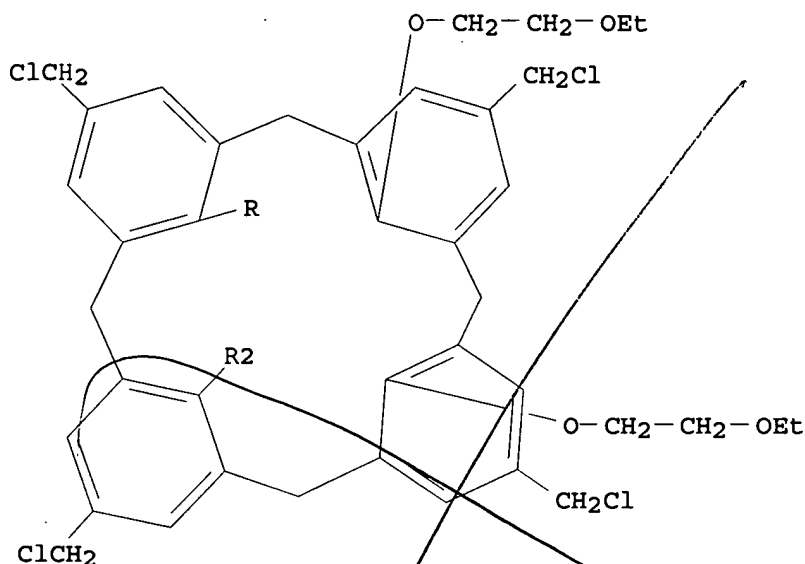
for alkali metal cations established that, surprisingly, 1,3-alternate and partial-cone conformers show an ion affinity higher than the corresponding cone conformers. Detailed examination with 1H NMR spectroscopy presented unambiguous evidence that in the 1,3-alternate conformers the metal cation is bound asym. to one of two metal-binding sites composed of two phenolic oxygens and two benzene rings, whereas in the partial-cone conformers the metal cation is bound to the upper rim composed of a phenolic oxygen in the inverted Ph unit and two benzene rings in the proximal Ph units. These metal-binding modes were rationalized in terms of the "cation- π interaction". The contribution of the cation- π interaction was further confirmed by the finding that these conformers all show high Ag⁺ affinity without exception. The x-ray crystallog. study of the partial-cone-2.Ag⁺ complex established that Ag⁺ is bound to a phenolic oxygen in the inverted Ph unit and two benzene rings in the proximal Ph units. Dynamic 1H NMR spectroscopy at the low-temperature region showed that Ag⁺ alternates intramolecularly between the two binding sites through a π -basic hole of 1,3-alternate calix[4]arenes. To the best of the authors' knowledge, this is the first example for Ag⁺-tunneling across an aromatic cavity and has important implications with regard to the metal cation- π interaction expected for metal transport through ion channels, metal inclusion in fullerenes, intercalation of metal cations into graphites, etc.

IT 155057-44-6P 163750-99-0P
(preparation of)

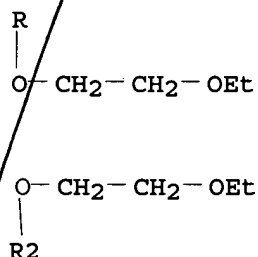
RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy) -
(CA INDEX NAME)

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RN 163750-99-0 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
 stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 68-2 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
 Section cross-reference(s): 65
 IT 97600-39-0P 105880-81-7P 155057-43-5P 155057-44-6P
 155057-45-7P 163750-99-0P
 (preparation of)

L24 ANSWER 56 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:217636 HCAPLUS

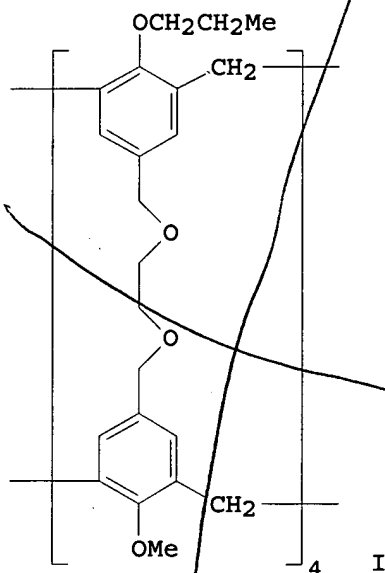
DOCUMENT NUMBER: 120:217636

ORIGINAL REFERENCE NO.: 120:38649a,38652a

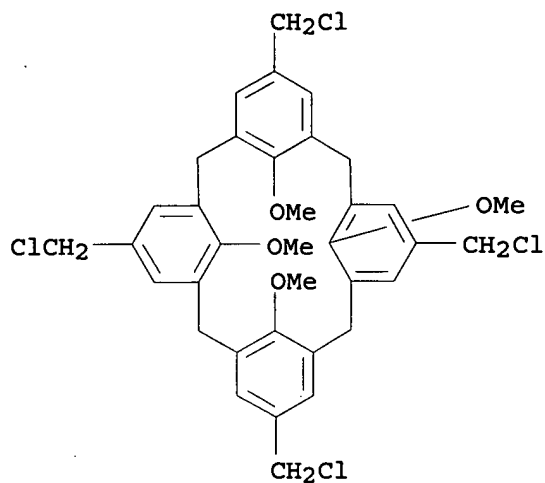
TITLE: Molecular design and synthesis of a
 biscalex[4]arene-based cage molecule

AUTHOR(S): Araki, Koji; Sisido, Koichi; Hisaichi, Katsuya;

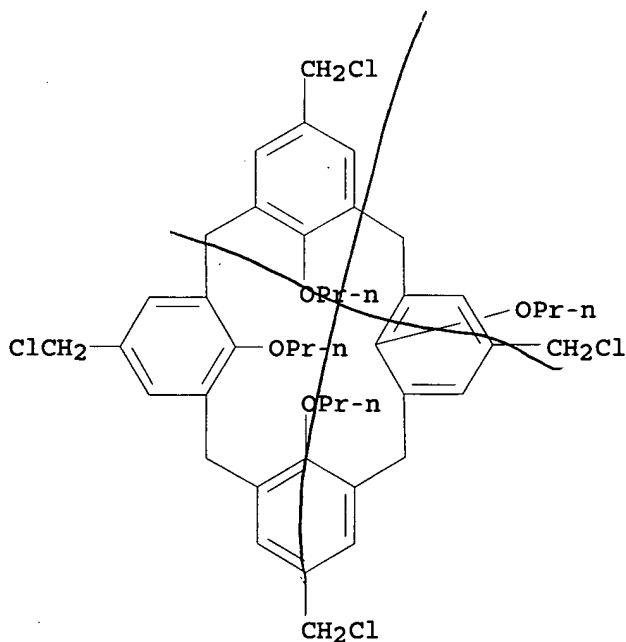
CORPORATE SOURCE: Shinkai, Seiji
 SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan
 Tetrahedron Letters (1993), 34(51), 8297-300
 CODEN: TELEAY; ISSN: 0040-4039
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 120:217636
 ED Entered STN: 30 Apr 1994
 GI



AB The biscalixarene-based cage mol. I, the synthesis of which is
 preceded but only in very low yield, was designed on the basis of
 the careful assessment of the reaction route and mol. models and
 synthesized for the first time in reasonable yield.
 IT 139934-98-8
 (reaction of, with (hydroxyethoxy)methyl-substituted calixarene)
 RN 139934-98-8 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX
 NAME)



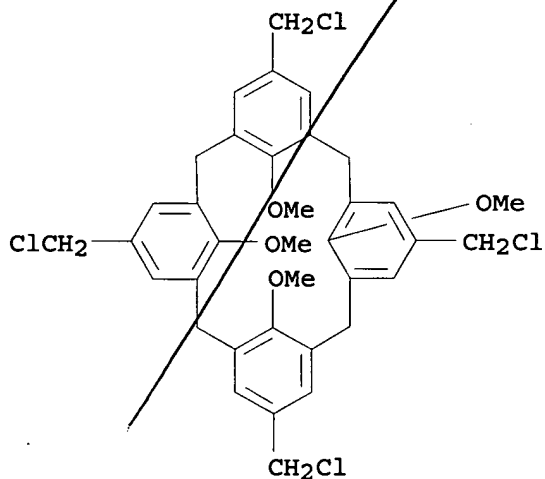
IT 153651-86-6
 (reaction of, with ethylene glycol)
 RN 153651-86-6 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-,
 stereoisomer (CA INDEX NAME)



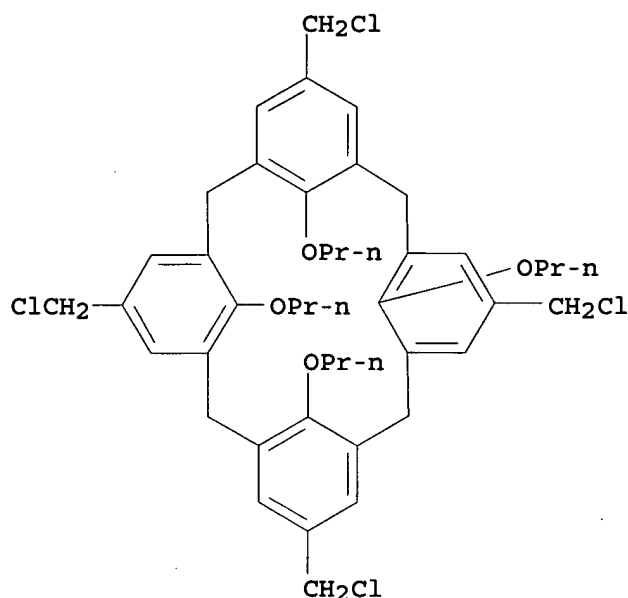
CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
 IT 139934-98-8
 (reaction of, with (hydroxyethoxy)methyl-substituted calixarene)
 IT 153651-86-6
 (reaction of, with ethylene glycol)

L24 ANSWER 57 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1994:191697 HCAPLUS

DOCUMENT NUMBER: 120:191697
 ORIGINAL REFERENCE NO.: 120:33931a,33934a
 TITLE: Stapled calix[n]arenes: immobilization of the calix[4]arene conformation by crosslinking on the upper rim
 AUTHOR(S): Ikeda, Atsushi; Shinkai, Seiji
 CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan
 SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1993), (22), 2671-3
 CODEN: JCPRB4; ISSN: 0300-922X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 16 Apr 1994
 GI For diagram(s), see printed CA Issue.
 AB The calix[4]arene conformation can be immobilized by stapling the upper rim of I (R = Me, Pr) with catechol, resorcinol or salicylic acid: in certain cases novel mol. asymmetry is generated.
 IT 139934-98-8 153651-86-6
 (reactant, in preparation of crosslinked calixarene)
 RN 139934-98-8 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



RN 153651-86-6 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
 IT 69-72-7, reactions 108-46-3, 1,3-Benzenediol, reactions 120-80-9,
 Catechol, reactions 139934-98-8 153651-86-6
 (reactant, in preparation of crosslinked calixarene)

L24 ANSWER 58 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1993:603792 HCAPLUS

DOCUMENT NUMBER: 119:203792

ORIGINAL REFERENCE NO.: 119:36369a,36372a

TITLE: New water-soluble calixarenes modified with amino acids at the upper rim

AUTHOR(S): Nagasaki, Takeshi; Tajiri, Yusuke; Shinkai, Seiji

CORPORATE SOURCE: Fac. Eng., Kyusyu Univ., Fukuoka, 812, Japan

SOURCE: Recueil des Travaux Chimiques des Pays-Bas (1993), 112(6), 407-11

CODEN: RTCPA3; ISSN: 0165-0513

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 13 Nov 1993

GI For diagram(s), see printed CA Issue.

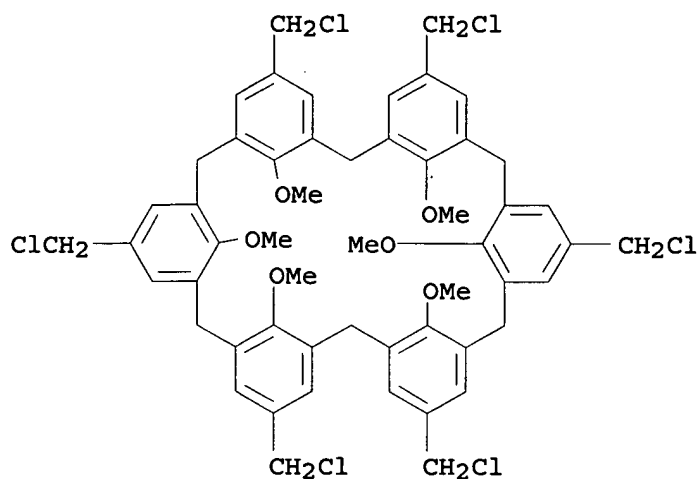
AB Calix[n]arenes I (n = 4, 6) modified with L-cysteines were synthesized. I were water-soluble, particularly, at acidic and basic pH regions. The critical micelle concns. (estimated by surface tension) appeared at $(0.50-3.2) \times 10^{-5}$ M. The "hydrophobicity" of these cavities was estimated by fluorescence of 8-anilino-1-naphthalenesulfonate: it showed that these calix[n]arenes become most hydrophobic at pH 5-6. The selectivity in guest inclusion was significantly affected by the medium pH.

IT 124006-38-8 139934-98-8

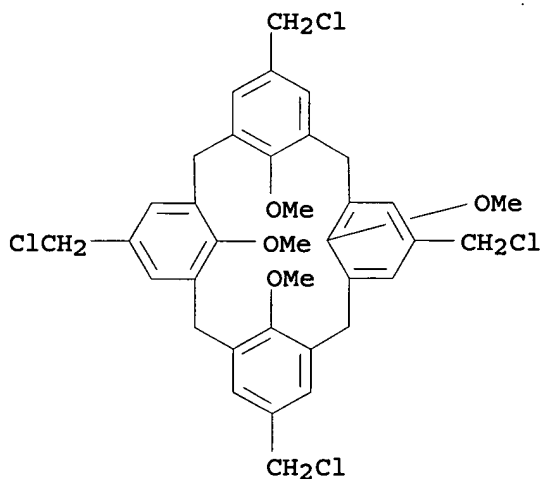
(substitution of, with thiourea)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 139934-98-8 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX
 NAME)



CC 34-2 (Amino Acids, Peptides, and Proteins)
 Section cross-reference(s): 25, 66
 IT 124006-38-8 139934-98-8
 (substitution of, with thiourea)

L24 ANSWER 59 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1993:540669 HCAPLUS

DOCUMENT NUMBER: 119:140669

ORIGINAL REFERENCE NO.: 119:25245a,25248a

TITLE: Perforated monolayers: fabrication of
 calix[6]arene-based composite membranes that
 function as molecular sieves

AUTHOR(S): Conner, Mark D.; Janout, Vaclav; Kudelka, Ivo;
 Dedek, Petr; Zhu, Jiayi; Regen, Steven L.

CORPORATE SOURCE: Zettlemoyer Cent. Surface Stud., Lehigh Univ.,
Bethlehem, PA, 18015, USA

SOURCE: Langmuir (1993), 9(9), 2389-97
CODEN: LANGD5; ISSN: 0743-7463

DOCUMENT TYPE: Journal

LANGUAGE: English

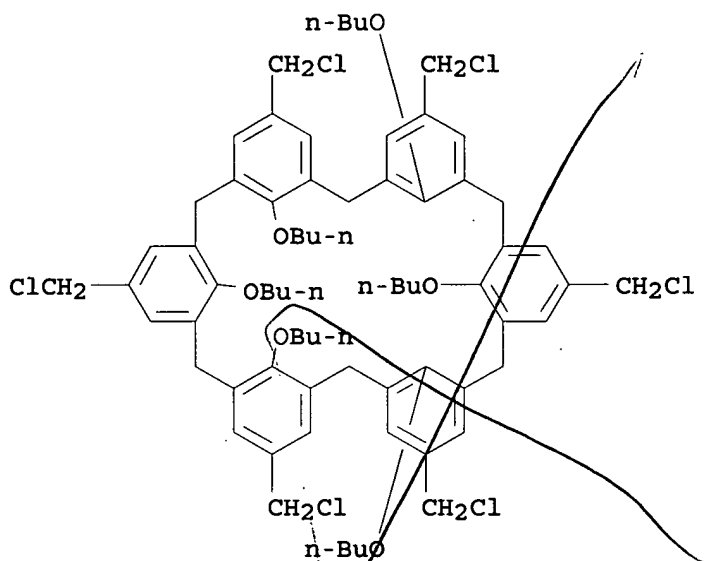
ED Entered STN: 02 Oct 1993

AB The synthesis, monolayer behavior, and polymerization characteristics of 3 new calix[6]arenes, and the fabrication and permselectivity of a series of composite membranes derived from one such amphiphile are presented. Monolayers of 5,11,17,23,29,35-hexakis(N-(2-methyldithio)ethyl)carbamoyle)-37,38,39,40,41-42-hexakis(octyloxy)calix[6]arene (I) exhibit a collapse pressure of 53 dyn/cm; those prepared from 5,11,17,23,29,35-hexakis(mercaptomethyl)-37,38,39,40,41,42-hexakis(n-butyloxy)calix[6]arene (II), and 5,11,17,23,29,35-hexavinyl-37,38,39,40,41,42-hexakis(3,6-dioxa-1-heptyloxy)calix[6]arene (III) collapse at 16 and 26 dyn/cm, resp. At the collapse point, the areas that are occupied by I-III are 165, 150, and 155 Å²/mol., resp. Polymerization of I via UV-induced disulfide disproportionation and II by air oxidation result in a modes reduction in surface pressure. In contrast, UV irradiation of III results in the complete loss of surface pressure and an apparent buckling of the film. Composite membranes that were fabricated from Langmuir-Blodgett (LB) multilayers of I, plus polymeric supports having large permanent pores (i.e., Celgard and Nuclepore membranes), show a significant reduction in permeability toward He, N and SF₆ but no enhancement in permeation selectivity (perselectivity). In striking contrast, analogous composites that have been constructed using poly[1-(trimethylsilyl)-1-propyne] as support material, function as mol. sieves; i.e., He and N readily permeate the composites, but SF₆ does not. On the basis of intrinsic permeability coeffs. that were calculated for He and N as a function of LB film thickness, it is concluded that this permselectivity is due to the selective transport across homogeneous multilayers of I.

IT 149969-39-1P
(preparation and reaction of, with potassium thioacetate)

RN 149969-39-1 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 37,38,39,40,41,42-hexabutoxy-5,11,17,23,29,35-hexakis(chloromethyl)- (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 46

IT 149969-39-1P

(preparation and reaction of, with potassium thioacetate)

L24 ANSWER 60 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1992:173253 HCAPLUS

DOCUMENT NUMBER: 116:173253

ORIGINAL REFERENCE NO.: 116:29303a,29306a

TITLE: Novel conformational isomerism of water-soluble calix[4]arenes

AUTHOR(S): Nagasaki, Takeshi; Sisido, Koichi; Arimura, Takashi; Shinkai, Seiji

CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Tetrahedron (1992), 48(5), 797-804

CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 116:173253

ED Entered STN: 03 May 1992

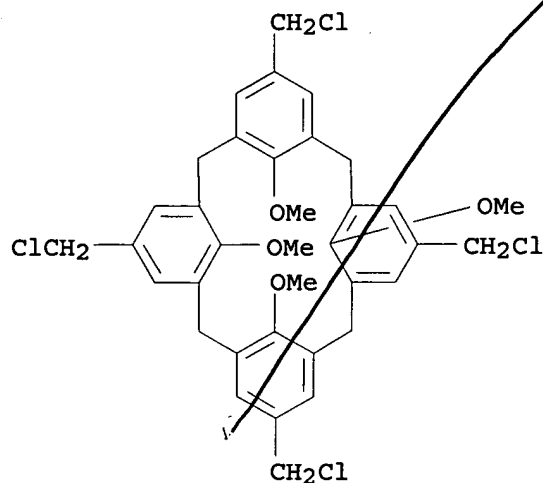
AB The conformer distribution of 5,11,17,23-tetrasulfonato-25,26,27,28-tetramethoxycalix[4]arene and 5,11,17,23-tetrakis(trimethylammoniomethyl)-25,26,27,28-tetramethoxycalix[4]arene was estimated in an aqueous system. Surprisingly, these calix[4]arenes adopt a 1,3-alternate conformation which has never been found as a major species in organic solvents but has been predicted to be most stable on the basis of computational studies.

IT 139934-98-8P

(preparation and reaction of, with trimethylamine)

RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,
5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX
NAME)



CC 22-3 (Physical Organic Chemistry)

IT 139934-98-8P

(preparation and reaction of, with trimethylamine)

L24 ANSWER 61 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1992:58923 HCAPLUS

DOCUMENT NUMBER: 116:58923

ORIGINAL REFERENCE NO.: 116:10185a,10188a

TITLE: Calixarene-based molecular capsule

AUTHOR(S): Arimura, Takashi; Matsumoto, Satoshi; Teshima, Osamu; Nagasaki, Takeshi; Shinkai, Seiji

CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Tetrahedron Letters (1991), 32(38), 5111-14

CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 21 Feb 1992

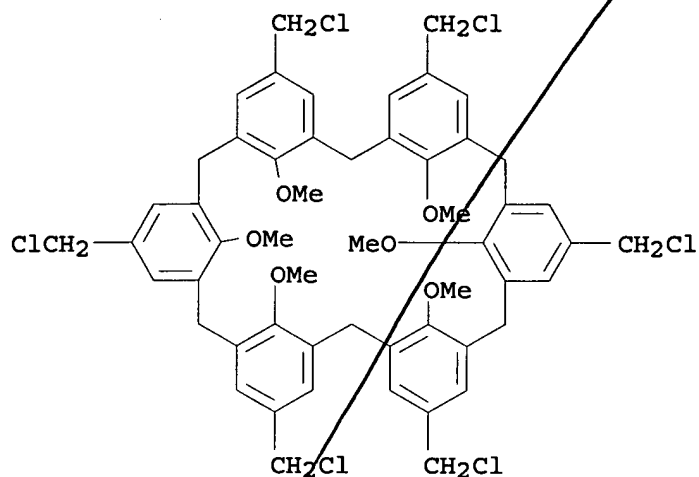
AB A mol. capsule was synthesized by the equimolar reaction of 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxycalix[6]arene and 5,11,17,23,29,35-hexakis(mercaptomethyl)-37,38,39,40,41,42-hexamethoxycalix[6]arene. The capsule is capable of constructive binding of a guest mol. (N-methylformanilide).

IT 124006-38-8P

(preparation and reaction of, with mercaptomethyl calixarene)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

IT 124006-38-8P 138578-98-0P
(preparation and reaction of, with mercaptomethyl calixarene)

L24 ANSWER 62 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1991:608101 HCAPLUS

DOCUMENT NUMBER: 115:208101

ORIGINAL REFERENCE NO.: 115:35517a,35520a

TITLE: A new calix[6]arene-based uranophile with
phosphonate groups as ligands

AUTHOR(S): Nagasaki, Takeshi; Arimura, Takashi; Shinkai,
Seiji

CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Bulletin of the Chemical Society of Japan (1991),
64(8), 2575-7

CODEN: BCSJA8; ISSN: 0009-2673

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 15 Nov 1991

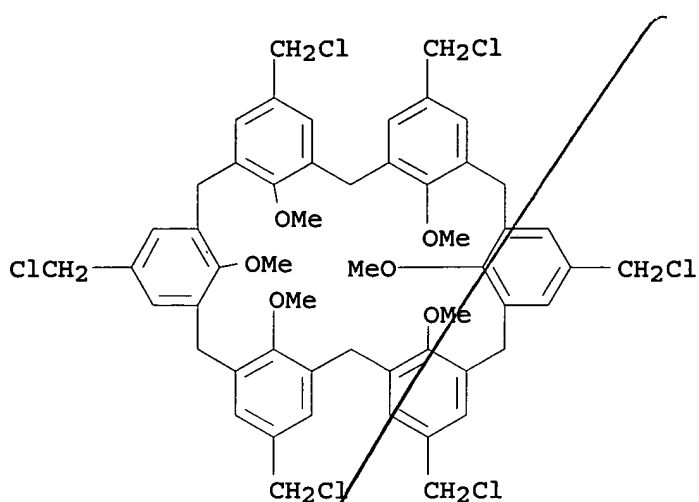
GI For diagram(s), see printed CA Issue.

AB A new calix[6]arene-based uranophile I which has six phosphonomethyl
groups on the upper rim was synthesized. This compound forms a 1:1
complex with uranyl ion (UO₂²⁺). The stability constant was estimated to be
10^{17.5} M⁻¹, which is satisfactorily comparable with those for
calix[6]arene-based uranophiles bearing OH or COOH groups on the lower
rim.

IT 124006-38-8
(reaction of, with tri-Et phosphite)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 25, 78

IT 124006-38-8
(reaction of, with tri-Et phosphite)

L24 ANSWER 63 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1991:143712 HCAPLUS

DOCUMENT NUMBER: 114:143712

ORIGINAL REFERENCE NO.: 114:24397a,24400a

TITLE: Calixarene derivatives having phosphonic acid group

INVENTOR(S): Kondo, Yoshikazu; Yamamoto, Toshihiro; Shinkai, Seiji; Matsuda, Tsutomu

PATENT ASSIGNEE(S): Kanebo, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02229198	A	19900911	JP 1989-49236	19890228
PRIORITY APPLN. INFO.:			JP 1989-49236	19890228

OTHER SOURCE(S): MARPAT 114:143712

ED Entered STN: 19 Apr 1991

GI For diagram(s), see printed CA Issue.

AB The title derivs. I [R = H, C1-20 hydrocarbyl which may have OH or CO₂H; X = P(O)(OM)₂, R₁P(O)(OM)₂; R₁ = lower hydrocarbylene; M = H, metal; m = 4-12) (II), I [R = R₂P(O)(OM)₂; R₂ = hydrocarbylene; X = H, C1-20 hydrocarbyl which may have OH, CO₂H, SO₃M] (III), and IV (R₃, R₄, and R₅ = any group given for X in III; n = 2-6), useful as water-soluble host compds. for capturing ions and compds., especially uranyl ion, and high-efficiency catalysts, are prepared A THF solution of I (R = X = H, m = 6), previously refluxed for 2 h, was treated with a THF solution of NaOH under reflux for 4 h, subsequently EtI was added dropwise and the reaction mixture was stirred under reflux for 20 h to give I (R = Me, X = H, m = 6) (V). A CS₂ solution of V and MeOCH₂Cl was

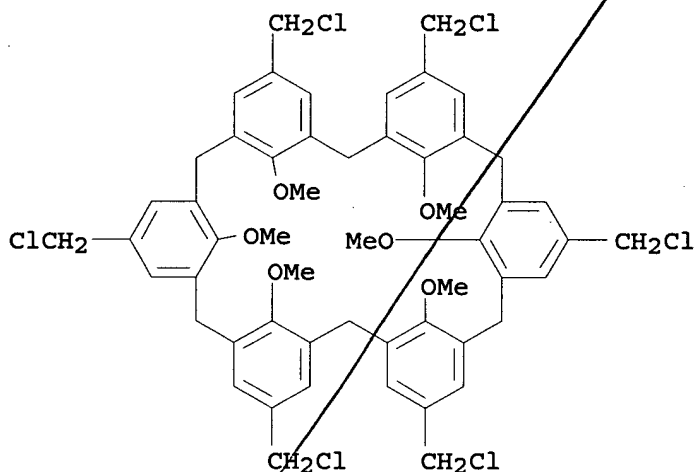
treated with a CH_2Cl_2 solution of ZnCl_2 at 20° for 38 h to give I ($\text{R} = \text{Me}$, $\text{R}_1 = \text{CH}_2\text{Cl}$, $n = 6$), which was treated with Et_3PO_3 under reflux for 14 h to give I [$\text{R} = \text{Me}$, $\text{X} = \text{CH}_2\text{P}(\text{O})(\text{OEt})_2$, $m = 6$] (VI). VI in dioxane was treated with concentrated HCl under reflux for 12 h to give II [$\text{R} = \text{Me}$, $\text{X} = \text{P}(\text{O})(\text{OH})_2$, $m = 6$], which form a complex with UO_2^{2+} ion with stability coefficient $\log K = 21.3 \text{ M}^{-1}$.

IT 124006-38-8P

(preparation and condensation of, with tri-Et phosphite)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



IC ICM C07F009-38

ICS C07F009-40

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 25

IT 124006-38-8P

(preparation and condensation of, with tri-Et phosphite)

L24 ANSWER 64 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1990:7106 HCAPLUS

DOCUMENT NUMBER: 112:7106

ORIGINAL REFERENCE NO.: 112:1394h,1395a

TITLE: Chloromethylation of calixarenes and synthesis of new water soluble macrocyclic hosts

AUTHOR(S): Almi, Mario; Arduini, Arturo; Casnati, Alessandro; Pochini, Andrea; Ungaro, Rocco

CORPORATE SOURCE: Ist. Chim. Org., Univ. Parma, Parma, I-43100, Italy

SOURCE: Tetrahedron (1989), 45(7), 2177-82
CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 112:7106

ED Entered STN: 06 Jan 1990

GI For diagram(s), see printed CA Issue.

AB The chloromethylation of calix[4]arene and of the Me ethers (I; $n = 6$, 8; $\text{R} = \text{Me}$) of calix[6]arene and calix[8]arene, using chloromethyl

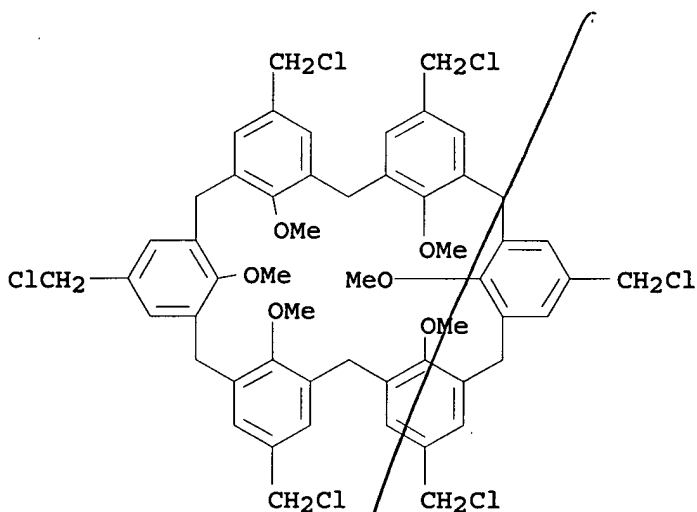
octyl ether and SnCl_4 in chloroform at room temperature, has been performed in good yield. The chloromethylated products have been used as intermediates to introduce onto calixarenes phosphonic acid groups which render these macrocycles water soluble and potentially useful in host-guest chemical

IT 124006-38-8P 124006-39-9P

(preparation and reaction of, with tri-Et phosphite)

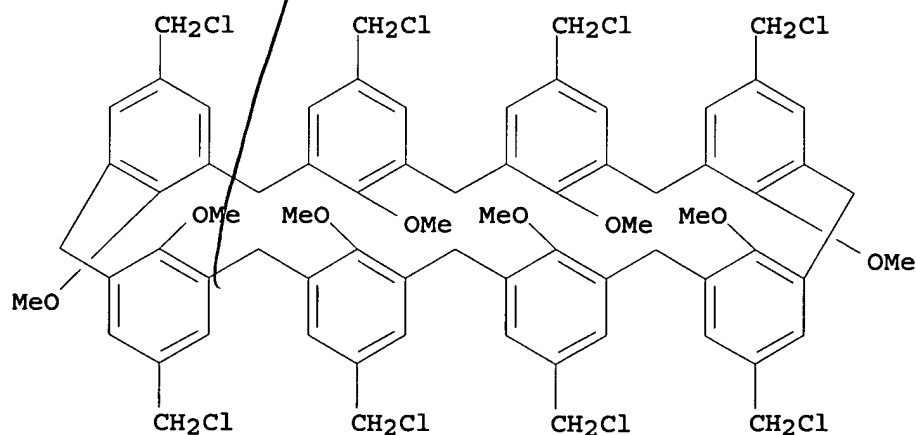
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 124006-39-9 HCAPLUS

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaeene, 5,11,17,23,29,35,41,47-octakis(chloromethyl)-49,50,51,52,53,54,55,56-octamethoxy- (CA INDEX NAME)



CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 29

IT 124006-37-7P 124006-38-8P 124006-39-9P
(preparation and reaction of, with tri-Et phosphite)

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SEL RN

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123-86-4/BI OR 125065-73-8/BI OR 1320-67-8/BI OR 139934-98-
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OR 97-64-3/BI)
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L5 0 SEA ABB=ON PLU=ON 139934-98-8/CRN
L6 1 SEA ABB=ON PLU=ON 125065-73-8/RN
L7 0 SEA ABB=ON PLU=ON 125065-73-8/CRN

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L8 11 SEA ABB=ON PLU=ON L4
L9 4 SEA ABB=ON PLU=ON L6

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L10 STR
L11 2 SEA SSS SAM L10
L12 STR L10
L13 1 SEA SSS SAM L12
L14 528 SEA SSS FUL L12
L15 4 SEA ABB=ON PLU=ON L14 AND L2
SAV L14 LEE068/A
L16 STR L10
L17 1 SEA SUB=L14 SSS SAM L16
L18 27 SEA SUB=L14 SSS FUL L16
SAV L18 LEE068A/A
L19 STR L10
L20 3 SEA SUB=L14 SSS SAM L19
L21 19 SEA SUB=L14 SSS FUL L19
SAV L21 LEE068B/A
L22 16 SEA ABB=ON PLU=ON L21 NOT (ISOBENZOFURANONE OR
PYRAN-6-ONE)
L23 482 SEA ABB=ON PLU=ON L14 NOT (L18 OR L21)

FILE 'HCAPLUS' ENTERED AT 08:27:19 ON 30 MAY 2008

L24 64 SEA ABB=ON PLU=ON L18
L25 24 SEA ABB=ON PLU=ON L22

FILE 'REGISTRY' ENTERED AT 08:28:38 ON 30 MAY 2008

L26 6 SEA ABB=ON PLU=ON L23 AND PMS/CI